

Cybernet

System 700

CCD-700

Service Manual

Contents

Specifications	2
Instruction Information	
Features	3
Cassette Deck Installation	3
Cassette Deck Connections	3
Control Functions	4
Loading & Unloading a Cassette	5
Playback	5
Automatic Stop/Play/Repeat	6
Recommendations for Tape Switch Setting	6
Recording	6
Protection of Recording Program	7
Maintenance	7
Trouble Shooting Guide	7
Circuit Description	8
Service Information	
Measurement Condition	9
Test Equipment	9
Preadjustment	10
Dolby NR Circuit Adjustment	10
Playback Circuit Adjustment	10
Recording Circuit Alignment	11
Block Diagram	12
PC Board Layout	13
Exploded View (General)	17
Exploded View (Tape Mechanism)	18
Replacement Parts List	19
Schematic Diagram	37

Specifications

Track system	4-track/2-channel stereo recording and playback.	Applicable microphone sensitivity	200 to 10,000 Ohm.
Tape speed	1-7/8 ips.	Outputs	580 mV (impedance 2.2 k-Ohm).
Wow and flutter	0.04% WRMS.	Line Headphone	40 mV (impedance 8 to 125 Ohm).
Frequency response		Bias frequency	85 kHz.
Metal	20 to 20,000 Hz (30 to 18,000 Hz @ ±3 dB).	Motor	Electronically governed DC constant type.
CrO ₂ /FeCr	20 to 18,000 Hz (30 to 17,000 Hz @ ±3 dB).	Heads	
Normal	20 to 17,000 Hz (30 to 16,000 Hz @ ±3 dB).	Record/Playback Erasure	Sendust-guard ('M and X').
S/N	58 dB IHF-A weighted.	Power requirement	220V 50 Hz AC.
Dolby NR effect	10 dB CCIR-weighted.	Consumption	42W.
Time required to fast-forward a C-60 tape	Approx. 90 seconds.	Dimensions	
Input sensitivity		Width	420 mm.
Microphone	0.3 mV (impedance 10 k-Ohm).	Depth	430 mm.
Line	60 mV (impedance 47 k-Ohm).	Height	100 mm.

Instruction Information

Features

The Cybernet model CCD-700 is a high fidelity stereo cassette deck designed to be incorporated with other System 700-series components — the integrated stereo amplifier model CA-700 and the digital AM/FM stereo tuner model CT-700S — into a complete stereo system. It features the following:

Dolby noise reduction system for improved S/N ratio/Tape Selector switch to optimize bias and equalization characteristic for all types of cassette tapes — including metal type/Full automatic-stop function to stop the motor at the tape end in all modes/Sendust-guard head ensures high performance and longer life/Concentrically clutched recording-level controls to permit easy fade-in or fade-out with the possibility of individual adjustment/Adjustable output level/Three modes of memory facility to permit automatic return to the beginning of a recording or a desired section of the tape, replay or repeat, in addition to automatic rewinding/Front-loading design to assure ease of operation and permit space-saving stacked configuration with the amplifier or receiver/Illuminated pushbuttons.

Cassette Deck Connections

Refer to pictorial connection diagram.
Connection to amplifier [or receiver]. The cassette deck is equipped with both RCA-type pin (cinch) jacks [**Line In** and **Line Out**] and a DIN jack. Employ either of them depending on the conditions of your amplifier [or receiver]. Both connections should not be employed at the same time. Connect the **Line Out** jacks to the Tape Play, Tape In or Aux In terminals of the amplifier with the shielded audio cables terminated with pin plug. Connect the **Line In** jacks to

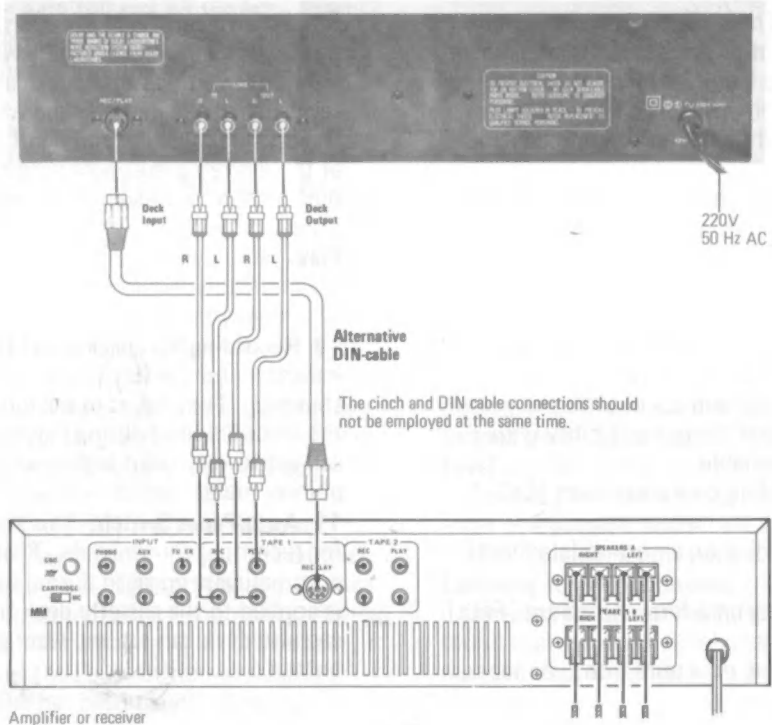
Cassette Deck Installation

Installation of your cassette deck is not complicated. However, the following guidelines must be followed for satisfactory performance and ease of operation of the unit.

Do not attempt to remove the cabinet cover — there are no user serviceable parts inside the unit. Refer servicing only to the qualified personnel/The equipment must not be exposed to excessive dust, moisture, or direct sources of heat or sunlight/To clean the cabinet, wipe with a soft cloth soaked in a neutral cleaner or a polishing cloth. Do not use benzine or thinner which will damage the cabinet finish/Do not place metallic or magnetized objects near the head.

the Tape Rec or Tape Out terminals on the amplifier with the shielded audio cables terminated with pin plug. As an alternative, if the amplifier is equipped with a DIN jack, you may connect to the DIN jack employing a single DIN cable set.

Cassette Deck Power Supply. Plug the power cord into the wall outlet supplying 220V 50 Hz AC.



Control Functions

- 1 Power Switch.** Push to turn power on. Illuminated when power is on.
- 2 Headphone Jack.** Accepts a plug from a stereo headphone for private listening [or monitoring the source being recorded].
- 3 Cassette Compartment.** Accommodates a cassette tape vertically.
- 4 Tape Transport Pushbuttons.** Determine the mode of operation of the tape transport and associated electronics.
- Record.** Used to activate the record mechanism and must be used in conjunction with the **Play** pushbutton in order to start the tape in motion when recording. To record, depress the **Record** button first, then press the **Play** button.
- Rewind.** Winds the tape at high speed from the right reel to the left reel. This permits rapid return to previous sections of the tape for replay or to start a new recording.
- Fast-Forward.** Winds the tape at high speed from the left reel to the right reel. This permits you to advance the tape rapidly

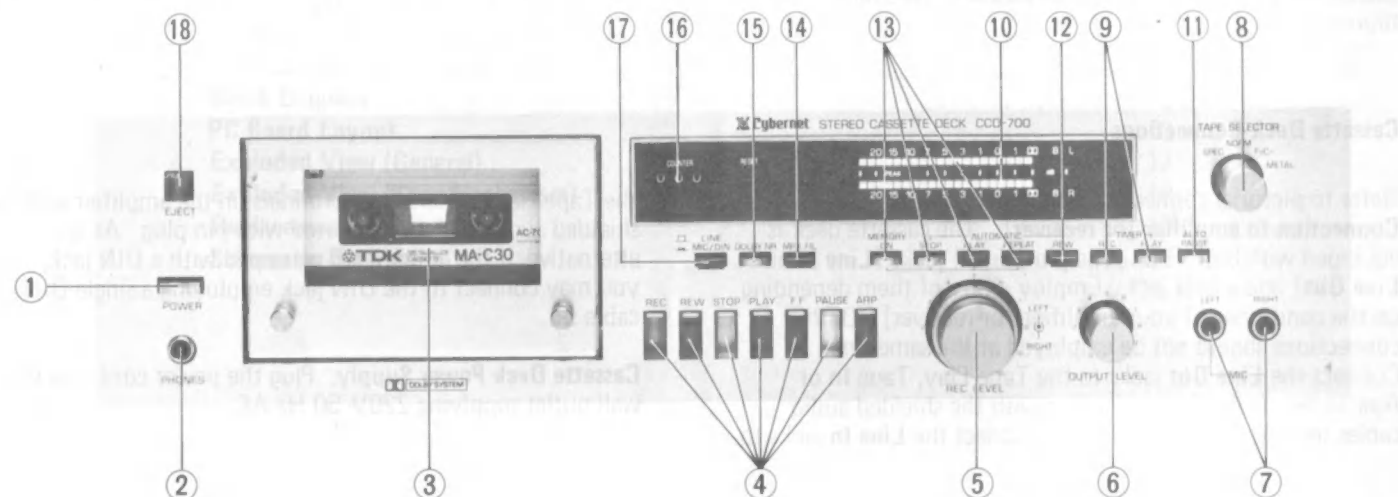
forward to skip sections of undesired material.

Play. Puts the tape in forward motion for playback of prerecorded tapes. This button is also used to start a recording in conjunction with the **Record** button.

Stop. When depressed, this button releases all cassette buttons that are depressed so that all tape functions are stopped. The **Pause** lever is the only exception. It will remain depressed until it is released manually.

Pause. Depressing this button will stop tape movement during record or playback, but will leave the **Record** or **Play** function engaged so that the deck is ready to resume recording or playback as soon as the **Pause** button is released. To disengage the **Pause** button, depress again and release.

ARP. To make non-recorded areas on tapes while recording, depress this pushbutton and the input to the tape is cut off while allowing the tape to run for 3 seconds until it stops automatically. The tape deck can resume recording by depressing the **Pause** pushbutton.



5 Recording Level Controls. These are concentric separate controls that permit independent or simultaneous adjustment of the two channel input signals from the **Microphone** jacks or line input jacks on the rear panel. The left channel level is adjusted with the inner knob, while the outer knob controls the right channel level.

6 Output Level Control. Adjusts the output level from the line output jacks. This control does not affect the level at the headphone jack.

7 Microphone jacks-Left/Right. These are left and right channel input jacks for microphones and will accept 2-conductor phone plugs of 1/4" diameter. Microphones used should be 10 k-Ohm or less in impedance.

8 Tape Selector. Adjusts the bias and equalization characteristics of the cassette deck for compatibility with the 4 types of tape presently available.

Special. When playing or recording on a chromium [CrO₂] type tapes, use this position.

Normal. When playing or recording on a normal [standard] type tapes, use this position.

FeCr. When playing or recording on a ferri-chromium [FeCr] type tapes, use this position.

Metal. When playing or recording on a pure iron type tapes, use this position.

9 Timer-Record/Play Switches. In conjunction with an optional timer unit [available where audio equipment supplies are sold], your cassette deck can commence playback or recording at the desired time which is preset by the timer unit.

Record. To make recording of any desired program material at the desired preset time automatically, depress this pushbutton. Following the instructions accompanying the timer unit will ensure proper timer setting.

Play. To playback prerecorded tapes at the desired time automatically, depress this pushbutton. Follow the instructions accompanying the timer unit to preset the desired time.

10 Recording/Playback Level Indicators. These are separate indicators for the left [upper row] and right [lower row] channels. They indicate the input level during recording and the recorded level during playback. The LED level indicators can act to very short high level pulses which conventional pointer meters cannot follow.

11 Auto-Pause Switch. This switch activates a unique feature for recording convenience. That is, pause condition is automatically engaged during recording, provided no signal is applied to the cassette deck for 2.5 seconds. The cassette deck can resume recording by pressing the **Pause** button.

12 Automatic Rewind Switch. When this pushbutton is depressed during playback mode, the tape deck will automatically begin to rewind the tape to the beginning of the tape, after the playback is completed [and the tape has been fully wound up to the right reel].

13 Memory Switch and Automatic Memory Mode Switches. These switches serve for memory convenience features:

Memory. When depressed, activates the memory convenience features. The mode of memory is determined by the following **Stop/Rewind/Repeat** switches and the tape counter.

Stop. When the **Memory** switch and this switch are depressed, rewind will automatically stop when the tape counter reaches **000**. By resetting the counter at the beginning of each section you record, you will later be able to rewind just to the beginning of the section.

Play. When the **Memory** switch and this switch are depressed, the unit will automatically restart to playback after the rewind is stopped at **000** on the counter.

Repeat. When the **Memory** switch and this switch are depressed, the tape deck will automatically start to rewind to the part of the tape where tape counter is set to **000** and restart to play from that part. This procedure is repeated until **Stop** pushbutton is depressed.

14 Multiplex Filter. This switch, when depressed during recording from FM tuner, will introduce 19 kHz filter that will prevent possible interference from the 19 kHz stereo pilot signal which is present in every FM stereo tuner or receiver and which may have been insufficiently filtered in the FM

Loading and Unloading a Cassette

Loading. Open the cassette compartment cover by pressing the **Eject** pushbutton firmly. Place the cassette tape into the compartment slot with the side you wish to hear facing you and the edge with the exposed tape side down. Since normal recording or playback is from the left reel to the right reel, it is customary to insert the cassette with full reel on the left. Press the cassette compartment lid firmly so that it snaps closed. Do not depress any function pushbuttons before the cassette tape is completely set in place.

Unloading. Depress the **Eject** pushbutton firmly. The cassette compartment will open and the cassette can be removed. If you wish to record or play the opposite side of the tape, turn the tape over and reload it into the compartment.

Playback

Playing. Turn the amplifier or receiver on and place the program selector on the amplifier or receiver to the position which selects the output of the cassette deck [normally selected by 'Tape Monitor' switch].

Set the **Dolby NR** switch as required. Set the **Tape Selector** switch as required. Depress the **Play** button. Adjust the **Output Level** control for a desired output level. To stop playing, depress the **Stop** button. If you want to stop playing temporarily, depress the **Pause** button. This will keep the unit ready for immediate resumption of playing as soon as the **Pause** button is pressed again. When one side of the tape has been played, turn the

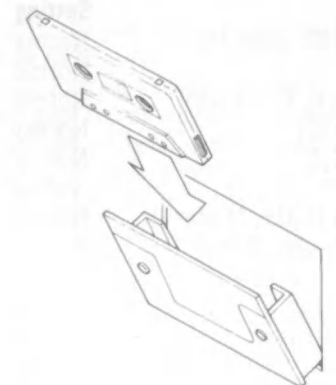
stereo unit.

15 Dolby NR Switch. Switches in the Dolby noise reduction system which, when used with a Dolbyized tape, will provide excellent reproduction. This switch should also be depressed when recording a program [either through the microphone or Line In jacks] to properly Dolbyize the recording. The Dolby noise reduction system should not be used with any conventional [not Dolbyized] stereo prerecorded tape, but should be used at all other times.

16 Tape Counter/Reset. This 3 digits counter will allow you to index the program material on the tape and thus enable you to locate desired sections easily and quickly. The counter is connected to the left reel and thus reads upward toward **999** when the tape moves forward, and downward toward **000** when the tape is rewound. Depressing the **Reset** pushbutton will set the counter to **000**.

17 Line-Mic/DIN Selector. Selects the program source to be recorded. Released position of this switch selects the stereo program connected to the **Line In** jacks on the rear panel. While depressing this switch will select the microphones connected to the **Microphone** jacks on the front panel. This position also selects the stereo program connected to the DIN jack on the rear panel when no microphone plugs are connected to the **Microphone** jacks.

18 Eject Pushbutton. When none of the cassette transport pushbuttons are depressed, depressing this pushbutton will open the cassette compartment cover so that the cassette can be removed.



cassette over if you want to play the opposite side.

Output Level Adjustment. The main purpose of the **Output Level** control is to adjust the level of the output signal supplied to the amplifier [or receiver] so that it is equal to the levels of other components connected to the amplifier. To control the speaker volume, employ the amplifier or receiver volume control.

Listening with Headphones. A phone jack on the cassette deck is provided for stereo headphone listening when desired. The sound heard in the headphones while recording is the signal from the recording amplifier.

Memory Convenience During Playback. The memory function works in conjunction with the tape counter to enable you to return to [or replay or repeat from] any previously selected point on the tape after recording or playback.

Automatic-Stop. This memory feature, working in conjunction with the tape counter in rewind mode, helps you to locate a predetermined spot on the tape to stop the tape run. By resetting the counter at the beginning of each selection on the tape you record, you will later be able to rewind just to the beginning of the selection.

- 1 Push the tape **Reset** button at the beginning of the section you wish to locate to stop rewinding.
- 2 Depress the **Memory** switch and the **[Automatic-] Stop** button.
- 3 Depress the **Rewind** button to start rewinding. During rewinding, the tape will automatically stop as the counter reaches **000**.

Automatic-Play. This memory mode operates in the similar manner as the **Automatic-Stop** mode, except that the deck will

Recommendations for Tape Selector Switch Setting

Following is a list of commercially available cassettes, along with the recommended setting of the tape selector switch. The cassette deck is optimized for the tapes shown in boldface. However, good results will be obtained with any high quality cassette.

Cassette Name		Tape Selector Setting
Agfa	(LN, HD, super HD)	Normal
Ampex	(LN)	Normal
BASF	(LN, LH, LF Super)	Normal
Maxell	(LN, UD)	Normal
Memorex	(MRX ₂)	Normal
Philips	(LN)	Normal
Scotch	(LH, LD, HE, Master I)	Normal
TDK	(D, SD, AD, ED)	Normal
Agfa	(Chrom)	Special
Ampex	(Chromium)	Special
BASF	(CrO ₂)	Special

Recording

Recording with Microphones. Plug the microphones into the left and right channel **Microphone** jacks. Set the **Line/Mic-DIN** button to **Mic/DIN** [depressed]. Set the **Dolby NR** switch as required. Set the **Tape Selector** switch as required. Depress the **Pause** button. Depress the **Record** button, then **Play** button. The recording condition will not be achieved if the **Play** button is depressed first. These buttons should now be illuminated to indicate that the machine is now in the recording mode [although the tape is not moving]. Adjust the **Recording Level** controls using the level indicators. Release the **Pause** button to commence recording.

automatically start to play the tape which is rewound to a predetermined spot [as the counter reaches **000**].

Automatic-Repeat. If you wish to hear particular section of the tape repeatedly:

- 1 Push the counter **Reset** pushbutton at the beginning of the section you wish to hear repeatedly.
- 2 Depress the **Memory** and **[Automatic] Repeat** switches.
- 3 Depress the **Play** button to start the initial playback. Now (1) after the tape has been played [fully rewound onto the right reel], the tape deck will (2) automatically begins to rewind the tape, then (3) stops rewinding as the counter reaches **000**, then (4) starts to replay from the section and reverts to step (1) again. This repetition of tape rewinding and playback is repeated any number of times.
- 4 Depress the **Stop** button to stop playing.
- 5 Release the **Memory** and the **[Automatic] Repeat** switch to resume the deck to normal playback mode.

Dolbyized Tape Playing. It is essential that the **Dolby NR** switch be set to on (depressed) to play Dolbyized tapes. That is, all tapes recorded with the **Dolby NR** switch on.

Maxell	(CrO ₂ , UD XL II)	Special
Memorex	(CrO ₂)	Special
Philips	(CrO ₂)	Special
Scotch	(CrO ₂ , Master II)	Special
Sony	(CR)	Special
TDK	(SA, KR)	Special
BASF	(Ferrochrom)	FeCr
Scotch	(Master III, classic)	FeCr
Sony	(Ferrichrome)	FeCr
BASF	(Metal pigment)	Metal
Fuji	(Metal)	Metal
Maxell	(Metal)	Metal
Nakamichi	(ZX metal alloy)	Metal
Philips	(Metal)	Metal
Scotch	(Metafine)	Metal
Sony	(Metallic)	Metal
TDK	(MA metal alloy)	Metal

Recording Other Sources. To record from **Line In** jacks, set the **Line/Mic-DIN** switch to **Line** [released]. To record from the **DIN** jack, set the switch to **Mic-DIN** [depressed] and disconnect the microphones from the **Microphone** jacks. Otherwise, proceed as above.

Recording Level Adjustment. If the recording level is too low, tape hiss will be a problem, but adjusting the level too high will result in overloaded and distorted recordings. Generally, optimum recording level is when the indicators deflect as close as possible to **0** on the highest peaks of the

program material without going significantly beyond **0**. When recording with the **Dolby NR** button depressed, the indicators may deflect up to double-D mark.

Automatic-Recording-Pause [ARP] and Auto-Pause Convenience in Recording. Your cassette deck incorporates two unique pause facilities — ARP and auto-pause. The ARP provides the great convenience in cutting out unwanted parts of the program source when recording, such as commercials. If you wish to omit a commercial on FM, for example, simply depress the **ARP** switch. This will cut out the recording input signal to the tape deck while allowing the tape to run 3 seconds, and the tape deck will be automatically engaged in pause

Protection of Recorded Program

New cassettes are provided with protective plastic tubs on the opposite side of the tape openings. To prevent the accidental erasure of the recordings on one side, hold the cassette as shown with the side you want to protect upward. Remove the tab marked **1** in the diagram. To protect the recording on the opposite side of the cassette, remove the tab marked **2** in the diagram. When you want to make a new recording after you have removed the tab(s), reseal the holes with cellophane or adhesive tape.

Maintenance

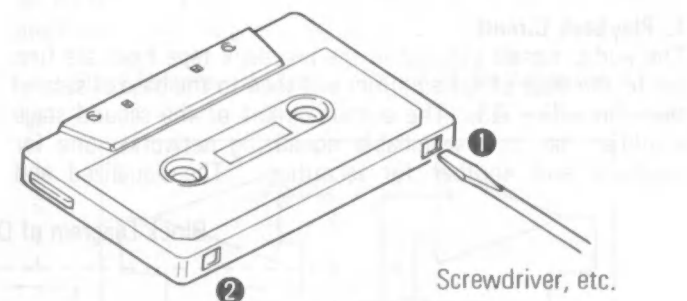
Cleaning the Head, Capstan and Pinch Roller. For optimum performance, the tape heads, capstan, and pinch roller surfaces should be cleaned after every 15 to 20 hours of actual use to remove oxide deposits. To clean the tape heads, use a cotton tipped swab slightly moistened with alcohol [available where tape supplies are sold]. Depress the **Eject** button to open the cassette compartment and remove cassette. Carefully wipe the faces of heads and the surfaces of pinch roller and

Trouble Shooting Guide

The following guide is intended as an aid in correcting problems you may encounter when setting up the stereo system. Although suggested remedy might seem quite elementary, it may be sufficient to make corrections without returning the unit to your dealer.

Problem	Suggested Remedy
Cassette deck will not operate when power switched on.	Be sure power cord is properly wired to power outlet supplying correct voltage and frequency.
Pushbutton(s) illuminates but no output from associated amplifier.	1 Turn program selector on your amplifier to position which selects the output of tape deck. 2 Check connecting audio cables from cassette

condition. After the commercial has been over, simply depress the **Pause** button. The deck will not automatically resume recording after 3 seconds, so be sure to depress the **Pause** button to restart recording. The auto-pause feature may be used to automatically finish or temporarily stop recording when the program source to be recorded has been over. With the **Auto-Pause** switch depressed, the deck will automatically be set in pause condition if no signal is applied to the deck inputs for longer period than 2.5 seconds. This will enable you to finish recording without making tapes run too far with no signal to record, or you can depress the **Pause** button to resume recording, if desired.



capstan which come into contact with the tape. **Demagnetizing Heads.** After period of time, a residual magnetism will build up on the tape heads. It is therefore recommended that the heads be demagnetized after every 20 hours of actual use. A head demagnetizer will perform this function quickly and easily. Follow manufacturer's instructions for use.

deck to the amplifier. 3 Rotate the output level control on the deck fully clockwise.

No output one channel.	1 Refer to above. 2 Exchange connecting audio cables to determine if problem is in equipment or cables.
Hum.	Be sure audio cables are fully inserted into amplifier jacks. 3 Move audio cables around [while listening] to reveal an intermittent or broken shielded lead. Repair or replace.

- Record** button will not function.

Play and **Record** buttons depressed but not tape movement.

Recording sounds loud and distorted.
- 1 Reseal recording protecting tab holes on cassette.

1 Release the **Pause** button.

1 Adjust the **Recording Level** controls so that the indicators do not read beyond **0** dB point.

- Playing sound too bright.

Sound quality lacks high.
- 1 If Dolbyized tape is used, set Dolby NR switch to on.

1 If tape is not Dolbyized, set Dolby NR switch off.

the automatic operation of Stop, Play, Repeat and Rewind. Another two AND logics (U1-11 & 10) are for timer recording and playback.

3. Logic Controls

The tape deck has employed the full logic control system for feather touch, simple operation, and the logic circuits are mounted on the PC board PSCZ019COX.

Description for every logic operation may be omitted, however the common rules required to read the logic operation is given below. Namely, the gate output is always high level if both gate inputs are low levels simultaneously. For all other input level combinations the logic output are always low levels.

The input stage of the logic circuits is comprised of four flip-flops, each of which consists of two logic units. The flip-flop has two logic states which are always opposite in output level. For example, if U1 (9) is high level, U3 (11) is low level or vice versa (refer to the schematic diagram).

Some examples of the logic states in relation to the operation mode selector switches are also given below:

- Q8: Cassette sensor
 Q9: Play LED driver
 Q10: Pause LED driver
 Q11: Stop LED driver
 Q12: Rec LED driver
 Q13: Rec solenoid driver
 Q14 & Q15: Auto-stop switching
 Q16: Audio muting

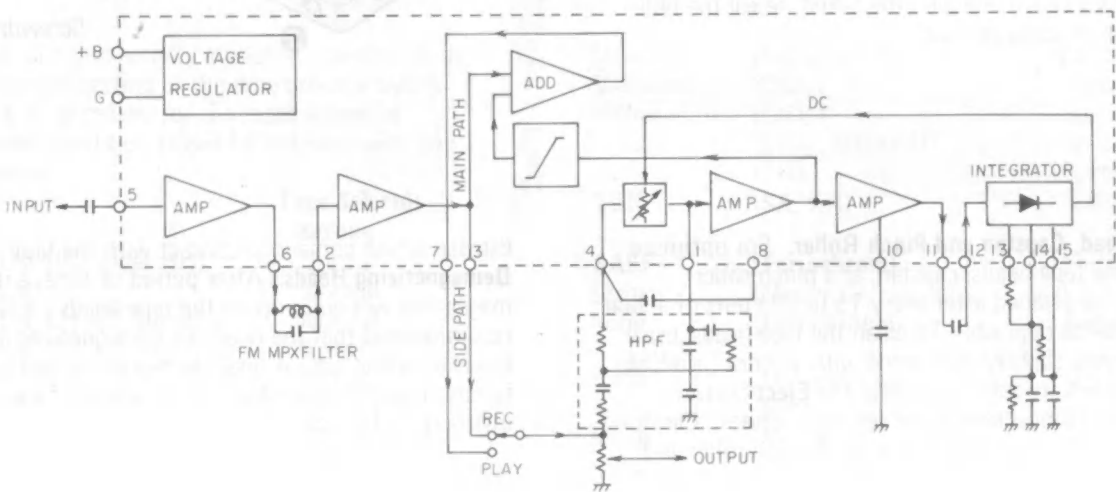
Circuit Description

1. Playback Circuit

The audio signals induced in the playback tape head are first led to the base of Q1 amplifier and then to the base of second stage amplifier Q3. The output circuit of the second stage amplifier has two switchable equalizing networks, one for playback and another for recording. The equalized and

amplified signals are then applied to the pin 5 of Dolby NR IC and further amplified, then decoded as shown in the block diagram of the Dolby NR system IC. The decoded playback signals are developed at pin 7 of the IC U1 and applied to the OUTPUT jacks and DIN jack through the output Volume control VR2.

Block Diagram of Dolby NR System IC, U1:



2. Recording Circuit

The recording circuit consists of the Dolby NR System IC, record head amplifier, final record amplifier and an oscillator unit.

Recording signals from LINE IN jacks are applied to the pin 5 of U1 through REC LEVEL control VR1, while the microphone signals are first led to the head amplifier and the amplified signals are applied to the pin 5 of the IC1 through LINE/MIC/DIN switch and REC LEVEL control. The amplified/encoded signals are developed at pin 3 of the IC. Thus amplified and encoded recording signals are led to the record amplifier of Q5, and the amplified output are led to the record head through a bias trap circuit (L1/C69). On the other hand, switching transistor Q13 is turned on during record mode of operation and supplies the power to the oscillator unit, thereby supplying the bias signal of 85 kHz to the record head. The transistor Q14 connected to the base of Q13 is also a switching transistor which controls the Q13. The base of Q14 is designed to be "H" level when STOP or PAUSE

button is depressed with the tape deck set to the record mode of operation.

The transistor Q7 is a switching transistor which incorporates the MPX filter to the Dolby NR processing circuit to remove undesirable MPX stereo switching noises, thereby reducing erroneous operation of the Dolby NR processing.

FET Q9 (Q10) functions as an ARP Muting circuit. The base (gate) of Q9 is connected to the ARP Control circuit consisting of Q1 and four logic units (U2) on the PC board of PSSW209COX. (ARP: Automatic Recording Pause, depressing the ARP button allows the tape to run for approx. 3 seconds without making any recording to provide non-recorded area on the tape for later use such as automatic program selection, etc.).

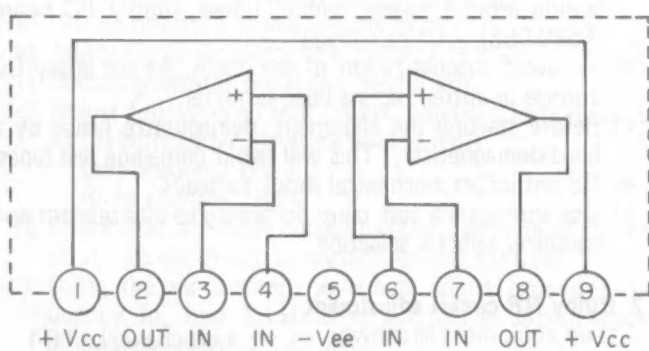
Provided on right side of the ARP circuit is the Auto Pause circuit consisting of transistors Q2-Q5. This circuit makes the tape deck set to Pause mode of operation provided no signal is applied to the deck for more than 2.5 seconds.

Two AND logics (U1-3 & 4) are the circuit which control

Service Information

- Alignment Procedure**
- 1. Measurement condition**
- Reference temperature: 25°C
 - Reference humidity: 65%
- NOTE: Unless otherwise specified strict accuracy of alignment is required and alignment may be performed under the room temperature of 5 – 35°C and humidity of 45 – 85%.
- 3) Power supply**
- Voltage: AC 220V ± 1%
- Frequency: 50 Hz ± 2%
- THD: less than 2%
- 2. Test equipment**
- Any testing equipment used in this alignment should have their known accuracy and capability to operate within a range of specified tolerance.
- NOTE: All testing equipment used should be properly calibrated.

Block Diagram of Headphone and Meter Amplifier IC:



EQUIPMENT	SPECIFICATION
1) AF signal generator:	Frequency range: 20 – 100 kHz. Output: 600 Ohm, 0.1 mV – 1V. THD: less than 0.1%.
2) mV meter:	Frequency range: 20 Hz – 1 MHz. Measurement range: 1 mV – 1.0V. Input impedance: more than 1 MOhm.
3) Oscilloscope:	Frequency range: 20 Hz – 1 MHz. Input range: 0.5 mV – 10V.
4) Frequency counter:	Frequency range: 20 Hz – 1 MHz.
5) Distortion meter:	Frequency range: 400 Hz/1 kHz (315 Hz). Measurement range: 0.1% – 3%. DIN/JIS/NAB
7) Head demagnetizer:	Measurement range: 0.1% – 3%.

8) Test tapes:

Usage	Model	Purpose
a) Playback level adjustment	MTT-150 (TEAC)	400 Hz at Dolby NR level.
b) Head azimuth adjustment	MTT-114 (TEAC)	10 kHz at -10 dB.
c) Playback frequency response alignment	MTT-217E (TEAC)	63 Hz/1 kHz/10 kHz at -10 dB.
	MTT-216 (TEAC)	3180 μ s ~ 120 μ s at -20 dB.
	MTT-316 (TEAC)	3180 μ s ~ 70 μ s at -20 dB.
d) Wow/flutter and tape speed alignment	MTT-111 (TEAC)	3 kHz at -10 dB.

3. Alignment

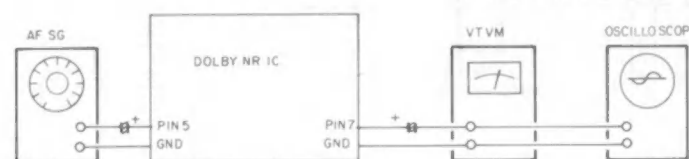
3.1 Preadjustment

- Before turning power on, check thoroughly and visually wiring around power switch, power supply PC board (PSPW058), + B line voltage.
- To avoid magnetization of the heads, do not apply DC voltage or current across head terminal.
- Before starting the alignment, demagnetize heads by a head-demagnetizer. This will avoid damaging test tapes.
- Do not inflict mechanical shock to heads.
- Use appropriate test tapes according to bias selector and equalizer selector selection.

3.2 Dolby NR circuit adjustment

Set up equipment as shown:

Left channel: TP-1
Right channel: TP-2
MPX filter switch: off



3.2.1 VU meter (Fluorescent-tube) adjustment

- Set Dolby NR switch to off and Set the deck to recording mode.
- Adjust AF signal generator frequency to **400 Hz**.
- Adjust AF signal generator to obtain level meter reading of **580 mV**.
- Rotate the following on PSDS002 until +3 dB (Dolby NR level) point LED's light up:
Left channel: RV-1,
Right channel: RV-2.

3.2.2 Dolby NR encoding characteristic check

- Adjust AF signal generator frequency to 5 kHz.
- Set Dolby NR switch to "on" position.
- Check for proportional increase in Dolby NR IC output to signal generator input as follows:

Input	Output	Acceptable tolerance
0 dB	0 dB (580 mV)	0 dB
-10 dB	-8.5 dB	± 2 dB
-20 dB	-17 dB	± 2 dB
-30 dB	-22 dB	± 2 dB
-40 dB	-30 dB	± 2 dB

- S/N adjustment MTT-212 315 Hz DIN reference (TEAC)
- Test music tape
Any tape available in the market.
- Record, playback, level and bias adjustment and measurement.
Normal bias (STD) D C-60 (TDK)
CrO₂ bias SA C-60 (TDK)
FeCr bias FCR C-60 (BASF)
Metal bias MA. AC-711 C-60 (TDK)

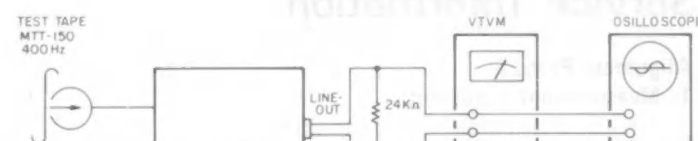
3.2.3 M.P.X. (19 kHz) filter check

- Set up equipment as before, set the deck to recording mode.
- Adjust signal generator frequency to 19 kHz.
- Set M.P.X. FIL switch to "ON" position.
- Connect level meter (discrete) to Line output jacks.
- Check 19 kHz signal is attenuated by more than 30 dB (580 mV = 0 dB) in comparison with the attenuation at 400 Hz.

3.3 Playback circuit alignment

Set up equipment as shown:

Dolby NR switch: off
Bias/Equalizer: normal
M.P.X. filter: off
Output volume: maximum



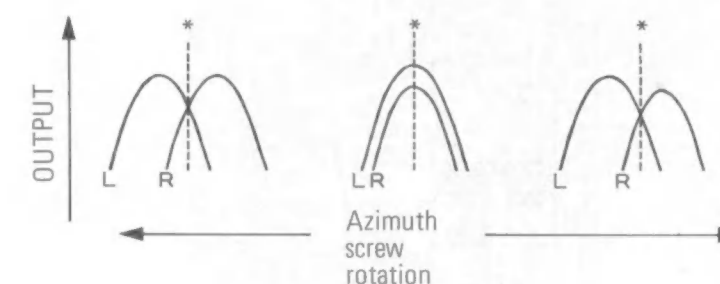
3.3.1 Playback output level adjustment

- Set up equipment as above.
- Insert level test tape **MTT-150** into the cassette compartment.
- Set the deck to playback mode.
- Adjust following for **580 mV \pm 0.5 dB** level indicator reading:
Left channel: RV-1,
Right channel: RV-2.

3.3.2 Head azimuth alignment

- Set up equipment as above.
- Insert azimuth test tape **MTT-114** into the cassette compartment.
- Adjust head azimuth screw for maximum output (voltage meter reading).

- If azimuth screw will not give equal maximum output for both left and right channels at the same point, use the following:



Adjust azimuth screw to: *

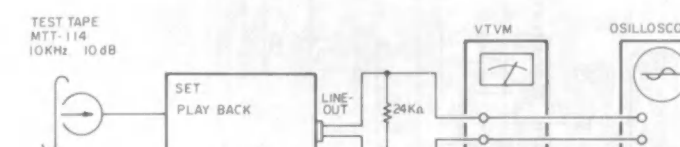
3.4 Recording circuit alignment

3.4.1 Bias frequency check

- Set the deck to REC mode.
- Connect frequency counter to #1 and #3 pin on PC board PSRP025.
- Check frequency as follows: 85 kHz \pm 5 kHz.

3.4.2 Recording and playback level alignment

Set up equipment as shown below:



- Adjust signal generator frequency to 1 kHz.
- Insert TDK SA C-60 blank tape, set the deck to REC mode.
- Adjust signal generator output until voltmeter connected to Line out jacks shows 580 mV (580 mV = 0 dB).
- Decrease generator output by 25 dB.
- After steps c) and d) above, adjust following for -25 dB playback level just recorded: (on PC board PSRP025)
Left channel: RV-3,
Right channel: RV-4.

- After completion of the Adjustment, lock the screw with lock paint.

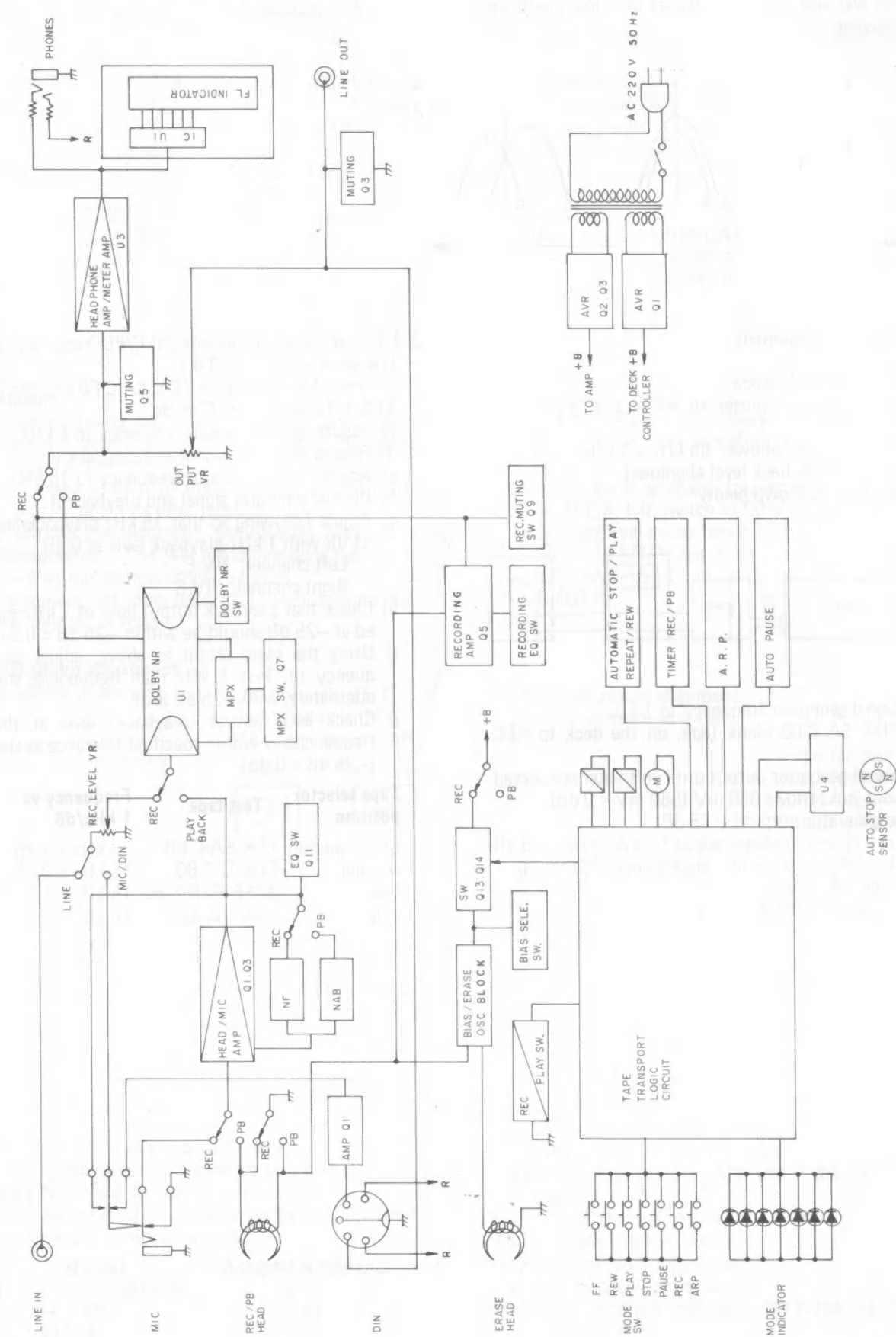
3.4.3 Bias current alignment (REC/PB frequency response)

Use same set up as in 3.4.2.

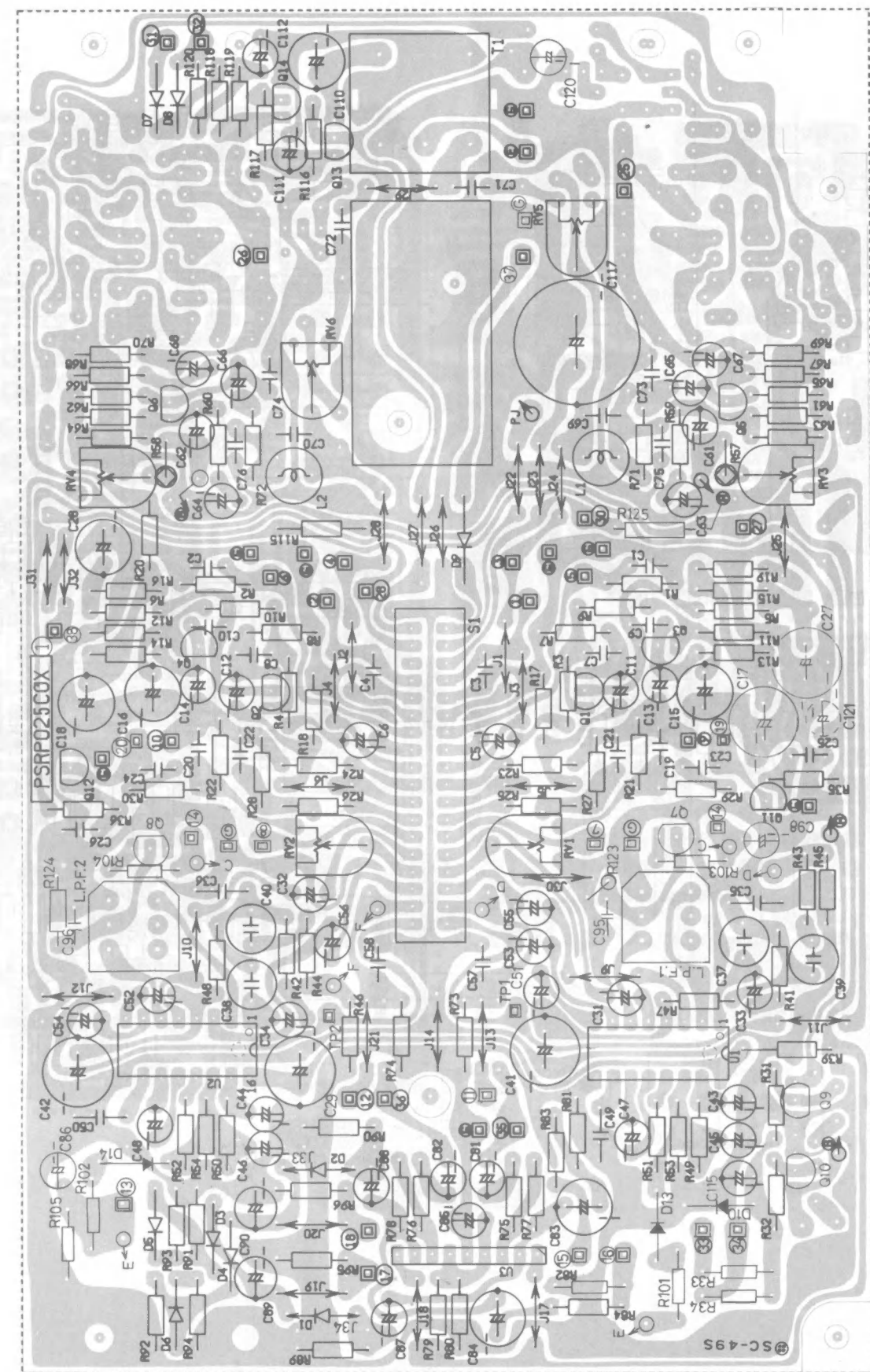
- Insert blank test tape TDK SA C-60 into the deck.
- Set the deck to REC mode.
- Adjust signal generator frequency to 1 kHz.
- Record generator signal and playback it.
- Adjust signal generator frequency to 15 kHz.
- Record generator signal and playback it.
- Adjust following so that 15 kHz playback level is within ± 1 dB with 1 kHz playback level as 0 dB:
Left channel: RV-5,
Right channel: RV-6.
- Check that playback output level of 1 kHz signal recorded at -25 dB should be within -25 dB \pm 0.5 dB.
- Using the same set-up as above, adjust generator frequency to, first 1 kHz then frequencies shown below alternately, with -25 dB level.
- Check each output (playback) level at the specified frequencies is within specified tolerance as stated below: (-25 dB = 0 dB)

Tape selector position	Test tape	Frequency vs 1 kHz/dB	1 kHz level
CrO ₂ (special)	TDK SA C-60	15 kHz \pm 1 dB	± 0.5 dB
Normal	TDK D C-60	15 kHz \pm 2 dB	± 1.0 dB
FeCr	BASF FCR C-60	15 kHz \pm 1.5 dB	± 1.0 dB
Metal	TDK MA AC711	15 kHz \pm 1.5 dB	± 1.0 dB

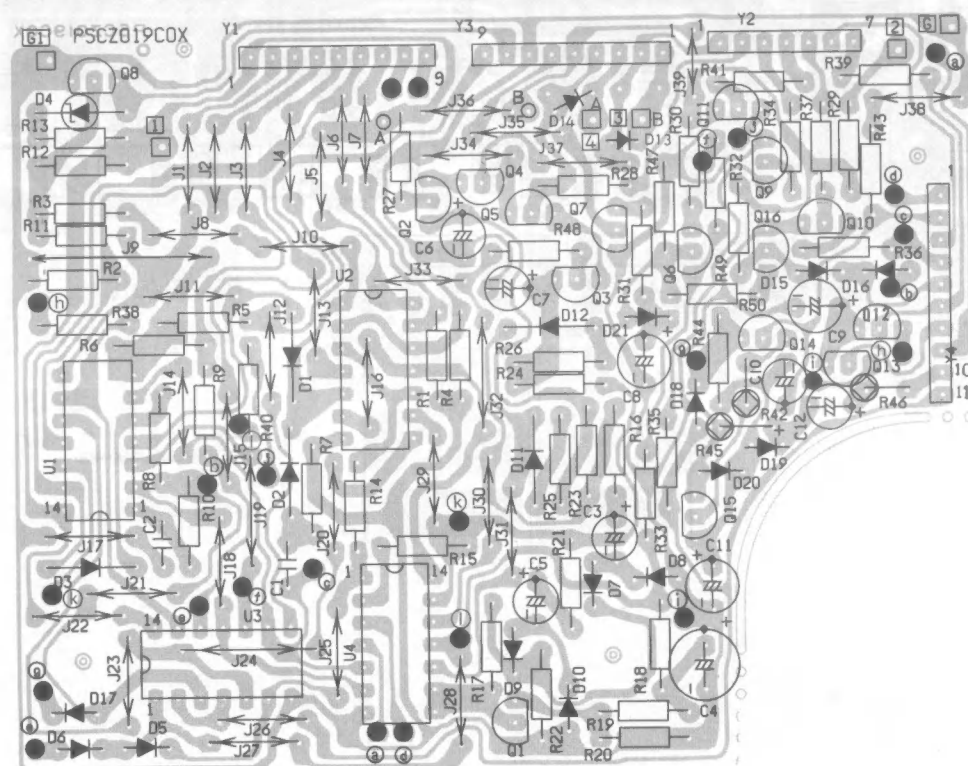
Block Diagram



PC Board Layout





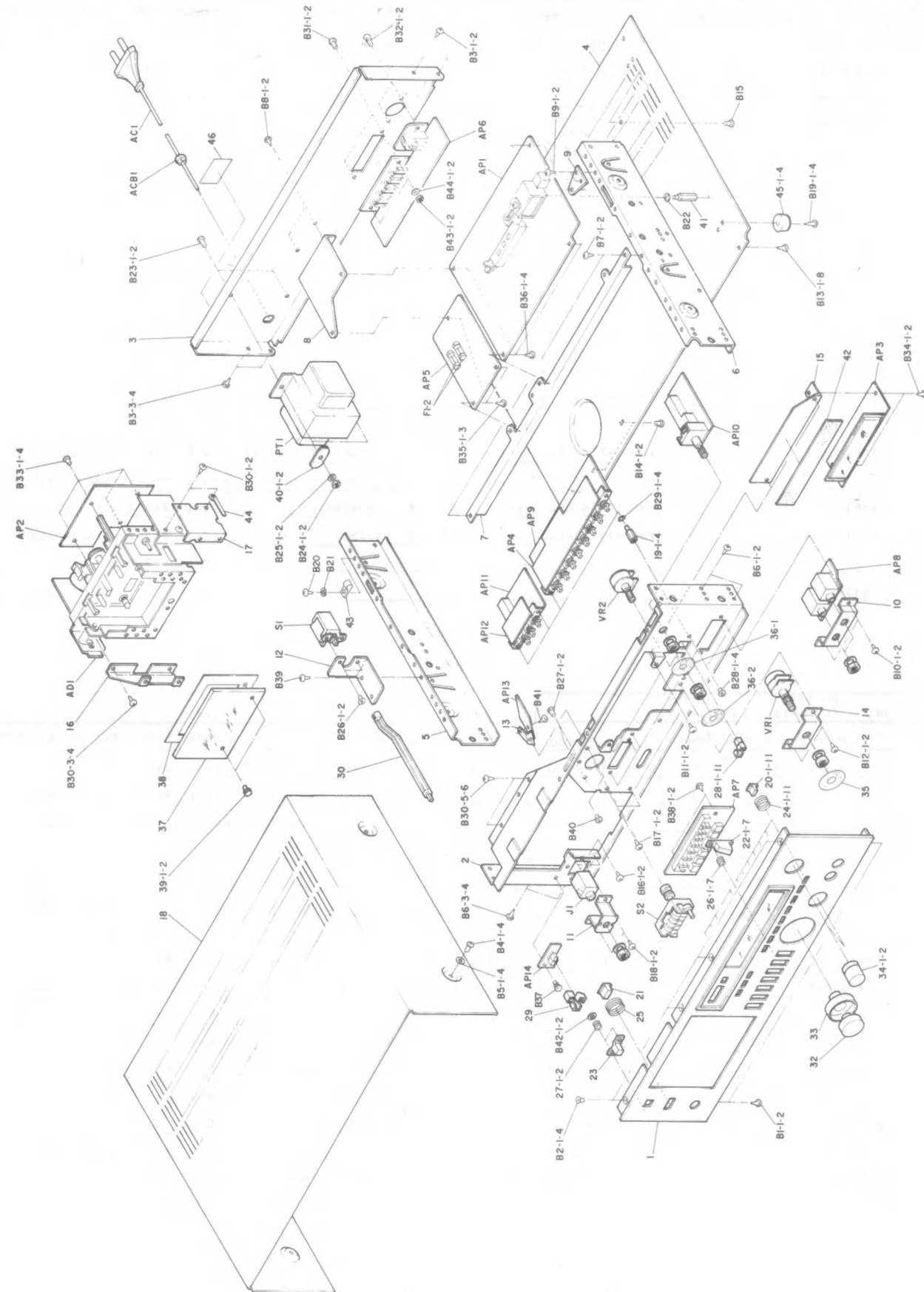


Replacement Parts List

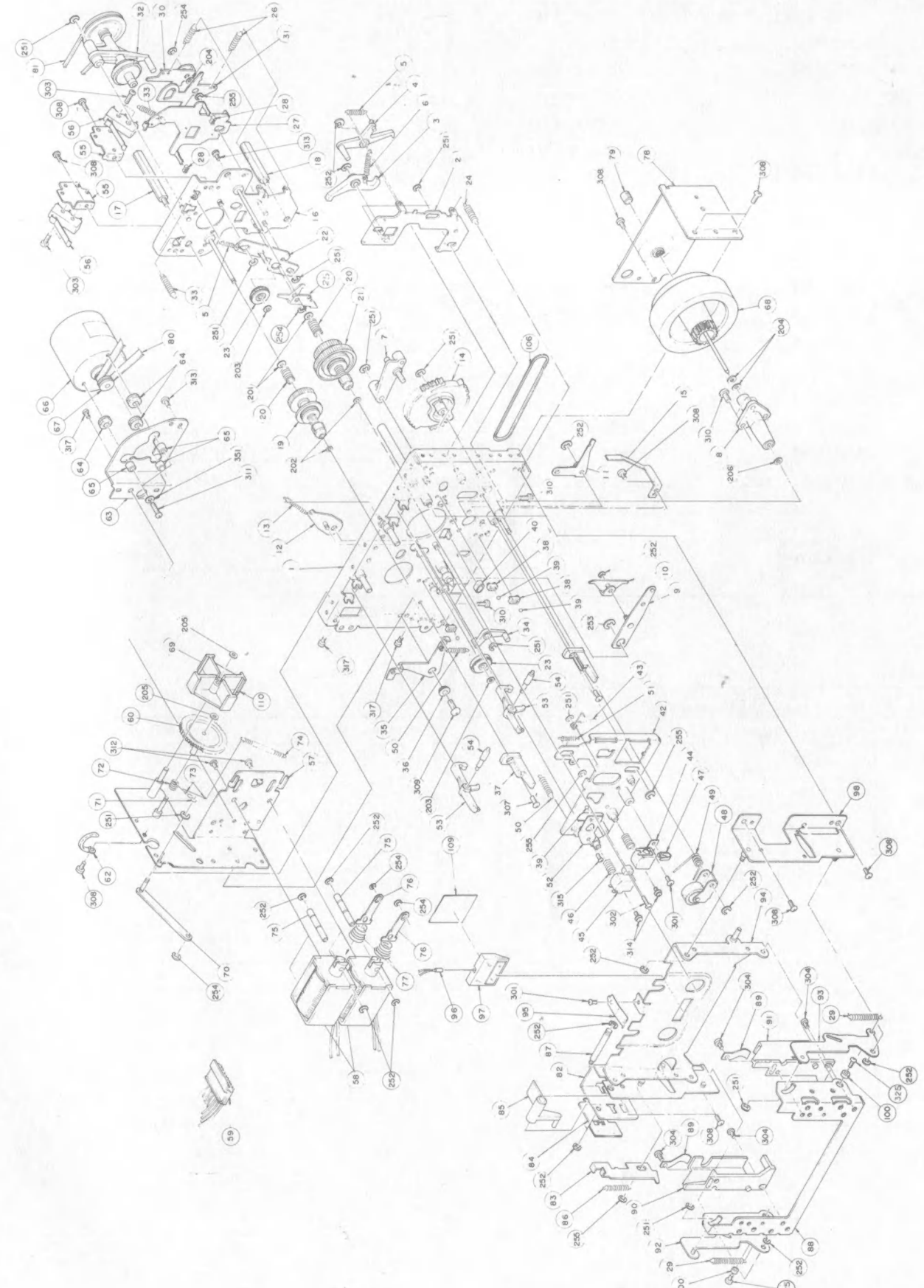
EXPLODED ASSEMBLY		PART NAME ELEC. ELEMENTS		PART CODE DE079ASMCL1				SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1-REV	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME											
1		ACAC035EEA		AC CORD ASSY					AC1					1	
2	EXPLODED	ADF1TAZ36G		TAPE DECK ASSY					AD1					1	
3	EXPLODED	APSCCD7012		P.W.B.OARD ASSY										1	
4	EXPLODED	APSCCD7021		P.W.B.OARD ASSY										1	
5	EXPLODED	APSCZ019AD		P.W.B.OARD ASSY										1	
6	EXPLODED	APSDS002CA		P.W.B.OARD ASSY										1	
7	EXPLODED	APSLD133AA		P.W.B.OARD ASSY										1	
8	EXPLODED	APSRP025CD		P.W.B.OARD ASSY										1	
9		CKDB103ZFM		CERAMIC CAP.	0.01MF0	50V	-20, +80% F	C2	C3				2		
10		CKDB472PEM		CERAMIC CAP.	4700PF	50V	-0, +100% E	C4	C5				2		
11		CNST103MAN		OIL PAPER CAP.					C1				1		
12		GCCD700AU1		WIRES KIT									1		
13		RVPA203A07		VR					VR1				1		
14		RVQA103A13		VR					VR2				1		
15		SPO1AA512N		PUSH SWITCH					S1				1		
16		TPJ66S004Y		POWER TRANS					PT1				1		
17		VM270NB004		BUSHING					ACB1				1		
18		VX432VL002		C-COVER					ZZ1				1		
19		YJS03S008Z		6P JACK					J1				1		
20		ZFBQ25203A		FUSE					F1				1		
21		ZFBQ40102A		FUSE					F2				1		

EXPLODED ASSEMBLY		PART NAME		PART CODE					
ELEC. ELEMENTS		DED79ASMCL1							
ITEM	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1		ZKD3A00017		COUNTER		S2			1
2		ZZZ0000154		SOLDERLESS CONN		ZZZ			1
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

Exploded View(General)



Exploded View(Tape Mechanism)



EXPLODED ASSEMBLY		PART NAME		PART CODE			
		MECH. ELEMENTS		DED79ASMCL2			
EXPLODED ASSEMBLY	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	EXPLODED	AMCCD70001		ESCUTCHEON ASSY		1	1
2		BCS4025XSP		CS-STOP RING		B42-1 B42-2	2
3		BNHCL30NSN		NUT	M3, S-NI, THIN-TYPE	B43-1 B43-2	2
4		BNHCL40NSN		NUT	M4, S-NI, THIN-TYPE	B24-1 B24-2 B24-3 B24-4	4
5		BRP3045QNB		PAN HEAD RIVET		B37	1
6		BRP3055QNB		PAN HEAD RIVET	3/16 X .5	B32-1 B32-2	2
7		BSPB2606NZ		BIND HEAD SCREW	(+)BIT, M2.6 X 6 S-ZNCR	B33-1 B33-2 B33-3 B33-4	4
8		BSPB4012NB		BIND HEAD SCREW	(+)BIT, M4 X 12 S-BLACK	B23-1 B23-2	2
9		BSPC3006NZ		CEMS SCREW	(+)BIT, M3 X 6 S-ZNCR	B15 B26-1 B26-2 B27-1	10
10						B27-2 B28-1 B28-2 B28-3	
11						B28-4 B40	
12		BSPP3008NB		PAN HEAD SCREW	(+)BIT, M3 X 8 S-BLACK	B31-1 B31-2	2
13		BTPB5010TN		BIND TAP SCREW		B4-1 B4-2 B4-3 B4-4	4
14		BTPL3008BB		NAIL TAP SCREW	(+)BIT, M3 X 8 S-BLACK	B3-1 B3-2 B3-3 B3-4	6
15						B8-1 B8-2	
16		BTPP3006TZ		PAN TAP SCREW	(+)BIT, M3 X 6 S-ZNCR (TAP TITE)	B14-1 B14-2 B30-1 B30-2	8
17						B30-3 B30-4 B30-5 B30-6	
18		BTPP3008AZ		PAN TAP SCREW	(+)BIT, M3 X 8 S-ZNCR	B38-1 B38-2	2
19		BTPP3008BZ		PAN TAP SCREW	(+)BIT, M3 X 8 S-ZNCR	B12-1 B12-2 B16-1 B16-2	6
20						B17-1 B17-2	
21		BTPS3006TB		FLAT TAP SCREW		B2-1 B2-2 B2-3 B2-4	4

EXPLODED ASSEMBLY	PART NAME		PART CODE		STOCK NO.	REMARKS	MECH. ELEMENTS				DED79ASMCL2			
	PART CODE		PART STOCK NUMBER				PART NAME		SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.		QTY USED
1		ML321SL001				BRACKET PWB				13		1		
2		ML333SL002				BRACKET PWR SW				12		1		
3		ML542SL002				BRACKET DECK R				17		1		
4		ML662SL001				BRACKET BK				8		1		
5		ML722SD001				BRACKET FL				15		1		
6		ML932SL001				BRACKET C				7		1		
7		MN276XA038				KNOB				34-1	34-2	2		
8		MN286XA064				KNOB W R				33		1		
9		MN286XA065				KNOB W L				32		1		
10		MS317SZ006				PLATE				40-1	40-2	2		
11		MS336SL003				BRACKET SD				9		1		
12		MS765AA010				PLATE CASSETTE				38		1		
13		MS986SX013				BOTTOM PLATE				4		1		
14		MT164AA007				SCREW				39-1	39-2	2		
15		MT263BD010				SPACER SW				19-1	19-2	19-3	19-4	4
16		MT563BJ001				SUPPORT				41				1
17		MU621SL002				BRACKET DECK L				16				1
18		MU852SL007				SIDE BRACKET R				6				1
19		MU852SL011				SIDE BRACKET L				5				1
20		MU896SM007				COVER				18				1
21		MW161LY002				SPRING D				26-1	26-2	26-3	26-4	7

EXPLODED ASSEMBLY	PART NAME		PART CODE	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
	MECH. ELEMENTS									
1		BTPW3008BZ					BRAS. TAP SCREW	(+)9IT, M3 X 8 S-ZNCR	B1-1 B1-2 B10-1 B10-2	27
2									B11-1 B11-2 B13-1 B13-2	
3									B13-3 B13-4 B13-5 B13-6	
4									B13-7 B13-8 B18-1 B18-2	
5									B20 B39 B41 B6-1	
6									B6-2 B6-3 B6-4 B7-1	
7									B7-2 B9-1 B9-2	
8		BTPW3012BZ					BRAS. TAP SCREW	(+)8IT, M3 X 12 S-ZNCR	B19-1 B19-2 B19-3 B19-4	4
9		BTPX3008BZ					L.T BT SCREW	(+)BIT, M3 X 8 S-ZNCR	B34-1 B34-2 B35-1 B35-2	9
10									B35-3 B36-1 B36-2 B36-3	
11									B36-4	
12		BWG30655SW					OT. LOCK WASHER	OUTSIDE TOOTHED, 3M/M S-ZN	B22 B29-1 B29-2 B29-3	9
13									B29-4	
14		BWM30A08SN					FLAT L. WASHER	FLAT LARGE, 3 M/M S-NI	B21	1
15		BWM50C08SN					FLAT L. WASHER	FLAT LARGE, 5 M/M S-NI	B5-1 B5-2 B5-3 B5-4	4
16		BWU30655SW					IT. LOCK WASHER	INSIDE TOOTHED, 3 M/M S-ZN	B44-1 B44-2	2
17		MB962SK016					REAR PANEL		3	1
18		MB962SL009					FRONT PANEL		2	1
19		MC222SL001					BRACKET PH J		11	1
20		MC242SL002					BRACKET MIC J		10	1
21		MC261SL001					BRACKET VR		14	1

EXPLODED ASSEMBLY		PART NAME		PART CODE						
		MECH. ELEMENTS		DED79ASMCL2						
ITEM NO.	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1						26-5	26-6	26-7		
2		MW161LY003		SPRING F		27-1	27-2			2
3		MW271LY004		SPRING A		24-1	24-10	24-11	24-2	11
4						24-3	24-4	24-5	24-6	
5						24-7	24-8	24-9		
6		MW271LY005		SPRING C		25				1
7		MX415SZ001		CLAMPER		44				1
8		VM283SB001		FOOT		45-1	45-2	45-3	45-4	4
9		VN220AX001		BUTTON A		20-1	20-10	20-11	20-2	11
10						20-3	20-4	20-5	20-6	
11						20-7	20-8	20-9		
12		VN220AX003		BUTTON C		21				1
13		VN240AX001		BUTTON D		22-1	22-2	22-3	22-4	7
14						22-5	22-6	22-7		
15		VN240AX002		BUTTON E		23				1
16		VQ611SB002		SHAFT		30				1
17		VS417NN003		CLAMPER.		43				1
18		VS627RF001		SPONG FL		42				1
19		VS654FB001		BARRIER		50				1
20		VS769AC001		LID CASSETTE		37				1
21		VS805YB004		SHEET A		35				1

EXPLODED ASSEMBLY	PART NAME		PART CODE			
	MECH. ELEMENTS	DEDT9ASMCL2				
REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	VS805YB005		SHEET B		36-1 36-2	2
2	VS824FB001		BLIND		49	1
3	VVSCCD70E1		SER.NO.PLATE		46	1
4	VX222SW001		ADAPTER BUTT A		28-1 28-10 28-11 28-2	1
5					28-3 28-4 28-5 28-6	
6					28-7 28-8 28-9	
7	VX222SW002		ADAPTER BUTT C		29	1
8						
9						
10						
11	KPCCD70E01		INNER CARTON	[PACKING MATTERS]		1
12						
13	ACPS001GEA		ST. AUDIO CABLE	[ACCESSORIES]		1
14						
15						
16						
17						
18						
19						
20						
21						

EXPLODED ASSEMBLY	PART NAME		PART CODE			
	TAPE DECK ASSY	ADF1TAZ36G				
REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	NSPDF41043		HD CHS CLMP SPG		52	1
2	NSPDF41047		CORD CLAMP (S)		47	1
3	NSPDF41048		CORD CLAMP (L)		62	1
4	NSPDF41052		P ROLLER ASSY		48	1
5	NSPDF41053		P IDLR LVR ASSY		12	1
6	NSPDF41054		SHIFT LEVR ASSY		2	1
7	NSPDF41055		SLNOID LVR ASSY		9	1
8	NSPDF41057		SLND BRCKT ASSY		57	1
9	NSPDF41058		DAMPER LINK ASY		70	1
10	NSPDF41060		CASE ARM ASSY R		92 93	2
11	NSPDF41066		SWITCH BRACKET		55	2
12	NSPDF41067		FF IDLR PLT ASY		22	1
13	NSPDF41068		REW ARM ASSY		30	1
14	NSPDF41069		FF ARM ASSY		31	1
15	NSPDF41070		F/WL BRKT ASSY		78	1
16	NSPDF41075		MOTOR HOLDER		63	1
17	NSPDF41103		EJECT LEVER (F)		84	1
18	NSPDF42017		REC ARM SHAFT		54	2
19	NSPDF42030		SOLENOID PIN		75	2
20	NSPDF42032		MOTOR SUPPORT		18	1
21	NSPDF42035		EJECT ARM SHAFT		87	1

EXPLODED ASSEMBLY	PART NAME		PART CODE			
	TAPE DECK ASSY	ADF1TAZ36G				
REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	NSPDF21050		CHASSIS ASSY		1	1
2	NSPDF23027		GEAR		14	1
3	NSPDF31026		CASSETTE CASE U		88	1
4	NSPDF31051		HEADCHASSIS ASY		42	1
5	NSPDF31056		SB CHASSIS ASSY		16	1
6	NSPDF31059		CASE BRKT L ASY		82	1
7	NSPDF31061		CSST TRAY ASSY		94	1
8	NSPDF31062		CASE BRKT ASSYR		98	1
9	NSPDF33007		STOPPER ARM		4	1
10	NSPDF35002		FLY WHEEL		68	1
11	NSPDF41006		RESET SPRING		15	1
12	NSPDF41007		PLAY ARM		11	1
13	NSPDF41009		SOLENOID ARM		10	1
14	NSPDF41012		BRAKE LEVER		27	1
15	NSPDF41016		LINK		76	2
16	NSPDF41024		CSST CLMP SPG B		95	1
17	NSPDF41027		CSST CLMP SPG A		89	1
18	NSPDF41030		EJCT SAFETY ARM		35	1
19	NSPDF41032		CASE LOCK PLATE		83	1
20	NSPDF41036		FR LOCK ARM		25	1
21	NSPDF41038		WHEEL WEIGHT		110	2

EXPLODED ASSEMBLY	PART NAME		PART CODE			
	TAPE DECK ASSY	ADF1TAZ36G				
REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	NSPDF42040		COLLAR (B)		36	1
2	NSPDF42046		PCB SUPPORT (A)		17	1
3	NSPDF42069		MOTOK PULLEY		67	1
4	NSPDF42072		COLLAR (CYB)		100	2
5	NSPDF43001		CASSETTE GUIDE		37	2
6	NSPDF43002		REC SAFETY ARM		53	2
7	NSPDF43004		P IDLER ARM		34	1
8	NSPDF43006		LOCK ARM		3	1
9	NSPDF43012		PULLY ARM ASSY		32	1
10	NSPDF43013		EJECT ARM		85	1
11	NSPDF43014		CSST POCKET (L)		90	2
12	NSPDF43015		CSST POCKET (R)		91	1
13	NSPDF43022		DRIVE GEAR		60	1
14	NSPDF43026		DAMPER WHEEL		69	1
15	NSPDF43030		BALL GUIDE		38	3
16	NSPDF43032		S REEL ASSY		19	1
17	NSPDF43033		T REEL ASSY		21	1
18	NSPDF43035		IDLER		23	2
19	NSPDF43039		LAMP WINDOW		97	1
20	NSPDF43042		SHIFT ARM		7	1
21	NSPDF44502		RUBBER BUSH		40	1

EXPLODED ASSEMBLY		PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
		TAPE DECK ASSY		ADF1TAZ36G								
1					NSPDF44504				CAPSTAN BELT		80	1
2					NSPDF44506				BRAKE RUBBER		28	2
3					NSPDF44507				FWD BELT		81	1
4					NSPDF45001				SUSTAINER		8	1
5					NSPDF46501				HEADCHASSIS SPG		43	1
6					NSPDF46503				HD CHS RIN SPGB		51	1
7					NSPDF46505				SHIFT LEVER SPG		24	1
8					NSPDF46506				STUPPER ARM SPG		5	2
9					NSPDF46508				DAMPER SPRING		74	1
10					NSPDF46510				HOOK		71	1
11					NSPDF46511				EJ SFTY ARM SPG		50	2
12					NSPDF46512				BACKTENSION SPG		20	2
13					NSPDF46515				SOLENOID SPRING		77	2
14					NSPDF46516				CAM SPRING		13	1
15					NSPDF46518				P ROLLER SPRING		49	1
16					NSPDF48008				LAMP SEAL		109	1
17					NSPDF49001				SOLENOID 1A1		58	2
18					NSPDF49013				9P HOUSING		59	1
19					NSPDF49014				PVC(FR-1)VIOLET		408	1
20					NSPDG41551				HEAD SPACER		116	1
21					NSPDG42282				MOTOR RING		65	1

EXPLODED ASSEMBLY		PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
		ESCUTCHEON ASSY		AMCCD70001								
1			ME96EAA032						ESCUTCHEON		1-A	1
2			VF174SX004						WINDOW		1-B	1
3			VK222SB003						BUTTON GUIDE C		1-D	1
4			VK242SB002						BUTTON GUIDE F		1-E	1
5			VK272SB002						BUTTON GUIDE A		1-C-1 1-C-2	2
6			VK274SB004						GUIDE PLATE		1-F	1
7			V5747AS002						PLATE		1-G	1
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												

EXPLODED ASSEMBLY		PART NAME		PART CODE			
		TAPE DECK ASSY		ADF1TAZ36G			
QTY USED	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1		NSPDG43076		CAPSTAN SCREW		79	1
2		NSPDG44020		MOTOR CUSHION		64	3
3		NSPDG44027		COUNTER BELT		106	1
4		NSPDG46012		RC LEVER SPRING		6	1
5		NSPDG46045		LEVER SPRING		29	2
6		NSPDG46057		HEAD SPRING		45	2
7		NSPDG46058		SUB CHSSIS SPG		85	1
8		NSPDG46060		PUSH LEVER SPG		33	2
9		NSPDG46062		IDLER SPRING		26	2
10		NSPDRM3XXX		LAMP		96	1
11		ZHA3722501		ERASE HEAD		45	1
12		ZHB4135101		R./PLAY HEAD		44	1
13		ZNP0122205		MOTOR		66	1
14							
15							
16							
17							
18							
19							
20							
21							

EXPLODED ASSEMBLY		PART NAME		PART CODE			
		P.W.B.O.A.R.D ASSY		APSCCD7012			
QTY	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
1	EXPLODED	APSCZ020AA		P.W.B.O.A.R.D ASSY			1
2	EXPLODED	APSPW058BD		P.W.B.O.A.R.D ASSY			1
3	EXPLODED	APSZZ082BD		P.W.B.O.A.R.D ASSY			1
4	EXPLODED	APSZZ104AA		P.W.B.O.A.R.D ASSY			1
5							
6							
7							
8							
9							

EXPLODED ASSEMBLY	PART NAME		PART CODE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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EXPLODED ASSEMBLY	PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	CYBERNET PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	P.W.B.O.A.R.D	A.S.S.Y	A.P.S.C.Z019AD											
1						CEAD100ALX		ELYT. CAPACITOR	10MFD 16V	C13				1
2						CEVB101ALX		ELYT. CAPACITOR		C9				1
3						CEVB470ALX		ELYT. CAPACITOR		C6 C7				2
4						CEVD101ALX		ELYT. CAPACITOR		C8				1
5						CEVD470ALX		ELYT. CAPACITOR		C11				1
6						CEVE4R7ALX		ELYT. CAPACITOR		C10 C12				2
7						CEVG010ALX		ELYT. CAPACITOR		C3 C5				2
8						CEVG2R2ALX		ELYT. CAPACITOR		C4				1
9						CKDB102KBM		CERAMIC CAP.	1000PF 50V -10% +10% B	C14				1
10						CQMB333KTH		MYLAR CAPACITOR	0.033MFD 50V -10% +10%	C1 C2				2
11						MW201B5001		TERMINAL						1
12						MW401CX001		SHORT JUMPER	JW-10					1
13						MW401CX002		SHORT JUMPER						2
14						MW401CX003		SHORT JUMPER						1
15						MW401CX005		SHORT JUMPER	JW-15					1
16						MW401CX006		SHORT JUMPER	10MM					3
17						MW401CX009		SHORT JUMPER						1
18						PSCZ019CUX		P.W. BOARD						1
19						QDSMA150XN		SILICON DIODE	MA150 VF=1.2V,VR=35V NO-RANK 24MIN	D1 D10 D11 D12				18
20										D15 D16 D17 D18				
21										D19 D2 D20 D21				

EXPLODED ASSEMBLY	PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	P.W.B.O.A.R.D	A.S.S.Y	A.P.S.C.Z019AD											
1										R38 R40				
2						RD25PJ222X		CARBON FILM R.	0.25W 2.2K OHM 5%	R31 R49				2
3						RD25PJ224X		CARBON FILM R.	0.25W 220K OHM 5%	R15 P22				2
4						RD25PJ393X		CARBON FILM R.	0.25W 39K OHM 5%	R17				1
5						RD25PJ471X		CARBON FILM R.	0.25W 470 OHM 5%	R34 R37 R41				3
6						RD25PJ472X		CARBON FILM R.	0.25W 4.7K OHM 5%	R43				1
7						RD25PJ473X		CARBON FILM R.	0.25W 47K OHM 5%	R14 R18 R20 R47				6
8										R8 R9				
9						RD25PJ560X		CARBON FILM R.	0.25W 56 OHM 5%	R29				1
10						RD25PJ561X		CARBON FILM R.	0.25W 560 OHM 5%	R28				1
11						RD25PJ563X		CARBON FILM R.	0.25W 56K OHM 5%	R19				1
12						RD25PJ681X		CARBON FILM R.	0.25W 680 OHM 5%	R27 R48				2
13						RD25PJ682X		CARBON FILM R.	0.25W 6.8K OHM 5%	R16 R21				2
14						RD25PJ823X		CARBON FILM R.	0.25W 82K OHM 5%	R11 R3 R7				3
15						RD25PJ824X		CARBON FILM R.	0.25W 320K OHM 5%	R44				1
16						RD25TJ101X		CARBON FILM R.	0.25W 100 OHM 5%	R51				1
17						RD25TJ102X		CARBON FILM R.	0.25W 1K OHM 5%	R39				1
18						RD25VJ223X		CARBON FILM R.	0.25W 22K OHM 5%	R42				1
19						RD25VJ473X		CARBON FILM R.	0.25W 47K OHM 5%	R45				1
20						RD25VJ562X		CARBON FILM R.	0.25W 5.6K OHM 5%	R46				1
21						WUG109EEXX		HI-WRAP WIRE		N011				1

EXPLODED ASSEMBLY	PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	P.W.B.O.A.R.D	A.S.S.Y	A.P.S.C.Z019AD											
1										D3 D5 D6 D7				
2										D8 D9				
3						QDSSR1KX4P		SILICON DIODE	SRIK-4 VR=200 4-RANK 25MIN	D13 D14				2
4						QD28R2EB3A		ZENER DIODE	RD8.2EB3 VZ=8.03-8.45V	D4				1
5						Q0004001AA		I.C.	UPD401C 3-STATE BUFFER 2-INPUT NOR GATE	U3 U4				2
6						Q0004025AA		IC	UPD4025C	U1 U2				2
7						QTA0564ACN		TRANSISTOR	2SA564A Q,R-RANK	Q14				1
8						QTA0720XBN		TRANSISTOR	2SA720 Q,R-RANK	Q5				1
9						QTC1383XCN		TRANSISTOR	2SC1383 Q,R-RANK	Q4 Q5 Q7				3
10						QTC1384XBN		TRANSISTOR	2SC1384 Q,R-RANK	Q13				1
11						QTC1685XAN		TRANSISTOR	2SC1685 Q,R-RANK	Q1 Q10 Q11 Q12				10
12										Q15 Q16 Q2 Q3				
13										Q8 Q9				
14						RD25PJ100X		CARBON FILM R.	0.25W 10 OHM 5%	R30				1
15						RD25PJ101X		CARBON FILM R.	0.25W 100 OHM 5%	R25 R26				2
16						RD25PJ103X		CARBON FILM R.	0.25W 10K OHM 5%	R10 R12 R50				3
17						RD25PJ104X		CARBON FILM R.	0.25W 100K OHM 5%	R1 R2 R4 R5				5
18										R6				
19						RD25PJ152X		CARBON FILM R.	0.25W 1.5K OHM 5%	R13				1
20						RD25PJ153X		CARBON FILM R.	0.25W 15K OHM 5%	R23 R24				2
21						RD25PJ183X		CARBON FILM R.	0.25W 18K OHM 5%	R32 R33 R35 R36				6

EXPLODED ASSEMBLY	PART NAME		PART CODE		REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	P.W.B.O.A.R.D	A.S.S.Y	A.P.S.C.Z019AD											
1						WUG115EEXX		HI-WRAP WIRE		N01				1
2						WUG213EEXX		HI-WRAP WIRE		N02				1
3						WUG312EEXX		HI-WRAP WIRE		N03				1
4						WUG413EEXX		HI-WRAP WIRE		N04				1
5						WUG507EEXX		HI-WRAP WIRE		N05				1
6						WUG511EEXX		HI-WRAP WIRE		N010				1
7						WUG612EEXX		HI-WRAP WIRE		N06				1
8						WUG713EEXX		HI-WRAP WIRE		N07				1
9						WUG815EEXX		HI-WRAP WIRE		N08				1
10						WUG907EEXX		HI-WRAP WIRE		N012				1
11						WUG908EEXX		HI-WRAP WIRE		N09				1
12						YJF07S004Z		JUNCTION JACK	B7P-SHF-1AA	Y2				1
13						YJF09S004Z		JUNCTION JACK	B9P-SHF-1AA	Y1 Y3				2
14						YJF10S026Z		JUNCTION JACK	B10P-SHF-1AA	Y4				1
15														
16														
17														
18														
19														
20														
21														

EXPLODED ASSEMBLY		PART NAME		PART CODE						
		P.W.B.O.A.R.D. ASSY		APSCZ020AA						
REV	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		ACCN196ULA		CONN.CORD-ASSY		AC2				
2		ACCN407GEA		CONN CORD ASSY		AC1				
3		MU261SS001		FULCRUM						
4		MW401CX006		SHOT JAMPER	10MM					
5		PSCZ020CUX		P.W. BORD						
6		QLBLN217RN		L.E.D.	LN217RP RED	LED11	LED12	LED13	LED14	4
7		QLBLN317GN		L.E.D.	LN317GP GREEN	LED1	LED2	LED3	LED4	8
8						LED5	LED6	LED7	LED8	
9		QLBLN417YN		L.E.D-DIODE	LN417YP ORANGE	LED10	LED9			2
10		SPO1ARX44A		PUSH SWITCH		S1	S2	S3	S4	7
11						S5	S6	S7		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

EXPLODED ASSEMBLY		PART NAME		PART CODE		STOCK NO.					
		P.W.B.O.A.R.D. ASSY		APSDS002CA							
QTY	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1		HUG610EFXX		HI-WRAP WIRE				NO2			1
2		HUG640EKXX		HI-WRAP WIRE				NO5	NO6		2
3		ZL24DW17XA		DISPLAY TUBE				LT1			1

EXPLODED ASSEMBLY		PART NAME		PART CODE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</	
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EXPLODED ASSEMBLY		PART NAME		PART CODE					
P.W.B.O.A.R.D. ASSY		APSLD132AA							
ITEM	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1		PSLD132C0X		P.W. BOARD					1
2		QLBLN417YN		L.E.D-DIODE	LN417YP ORANGE	LED1	LED2		2
3		HUG043EKXX		HI-WRAP WIRE		NO1			1
4		HUG243EKXX		HI-WRAP WIRE		NO2			1

EXPLODED ASSEMBLY		PART NAME		PART CODE							
		P.W.B.O.A.R.D. ASSY		APSLD133AA							
ITEM	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		PSLD133C0X		P.W. BORD							1
2		QLBLN217RN		L.E.D.	LN217RP	RED	LED6				1
3		QLBLN317GN		L.E.D.	LN317GP	GREEN	LED2	LED3	LED4	LED5	5
4							LED7				
5		QLBLN417YN		L.E.D-DIODE	LN417YP	ORANGE	LED1	LED8			2

EXPLODED ASSEMBLY		PART NAME		PART CODE						
		P.W.B.O.A.R.D. ASSY	APSDS002CA							
QTY	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		CEAE100ALX		ELYT. CAPACITOR	10MFD 25V	C3				1
2		CEAG0102MN		ELYT. CAPACITOR	1MFD 50V MS	C1	C2			2
3		CKCB103PEM		CERAMIC CAP.	0.01MFD 50V -0, +100% E	C4				1
4		MW201BS001		TERMINAL						6
5		MW401CX001		SHORT JUMPER	JW-10					1
6		MW401CX006		SHOT JAMPER	10MM					4
7		PSDS002C0X		PRINTED W.B.O.A.R.D.						1
8		QDG1K261XP		GERMANIUM DIODE	1K261 35V NO-RANK 26MIN	D1	D2	D3	D4	4
9		QDZ180EB3A		ZENER DIODE	RD18E03 VZ=17.42-18.33V	D5				1
10		QQM12019AB		I.C.		U1	U2			2
11		QTD0325XCC		TRANSISTOR	2SD325 D,E-RANK	Q1				1
12		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%	R8				1
13		RD25PJ473X		CARBON FILM R.	0.25W 47K OHM 5%	R5	R6			2
14		RD25PJ821X		CARBON FILM R.	0.25W 820 OHM 5%	R3	R4			2
15		RD25PJ823X		CARBON FILM R.	0.25W 82K OHM 5%	R1	R2			2
16		RGHARJ101B		M-OXIDE FILM R.		R7				1
17		RPGNB10301		SEMI-FIXED VR.	10K OHM B-CURVE	RV1	RV2			2
18		HUG137EKXX		HI-WRAP WIRE		NO2				1
19		HUG237EKXX		HI-WRAP WIRE		NO3				1
20		HUG332EKXX		HI-WRAP WIRE		NO4				1
21		HUG513EEKXX		HI-WRAP WIRE		NO1				1

EXPLODED ASSEMBLY		PART NAME		PART CODE						QTY USED		
		P.W.B.O.A.R.D. ASSY	APSPW058UD									
1	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO			
1		BTPW3008AZ		BRAS. TAP SCREW	(+)BIT, M3 X 8 S-ZNCR							
2		CEAE101ALX		ELYT. CAPACITOR	100MFD	25V			C10	C9		
3		CEAE332ACN		ELYT. CAPACITOR					C2			
4		CEAF101ALX		ELYT. CAPACITOR	100MFD	35V			C7			
5		CEAF471ALX		ELYT. CAPACITOR	470MFD	35V			C6			
6		CEVD101ALX		ELYT. CAPACITOR					C3	C4		
7		CEVE487ALX		ELYT. CAPACITOR					C11			
8		CEVF100ALX		ELYT. CAPACITOR					C12			
9		CKDE103PEM		CERAMIC CAP.	0.01MFD	500V	-0, +100% E		C1	C5		
10		CKFB4737FT		CERAMIC CAP.	0.047MFD	50V	-20, +80% F		C8			
11		MU242A0001		HEAT SINK								
12		MW201BS001		TERMINAL								
13		MW401CX006		SHOT JAMPER	10MM							
14		PSCCD701CX		PRINTED W.B.O.A.R.D.								
15		PSPW058C0X		P.W. BORD								
16		PSZZ084C0X		PRINTED W.B.O.A.R.D.								
17		QDSSR1K4AP		SILICON DIODE	SR1K4LF	VR=200	A-RANK	9MIN	D1	D2	D3	D4
18									D5	D6	D7	
19		QDZ130EB3A		ZENER DIODE	RD13E93	VZ=12.99-13.66V			D10	D8		
20		QDZ220EB3A		ZENER DIODE	RD22E93	VZ=21.09-22.17V			D9			
21		QTC1383XCN		TRANSISTOR	ZSC1383	Q,R-RANK			Q2			

EXPLODED ASSEMBLY	PART NAME		PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE									
1		QTD0325XCC			TRANSISTOR	2SD325 D-E-RANK	Q1	Q3			2
2		RD25PJ101X			CARBON FILM R.	0.25W 100 OHM 5%	R3	R7			2
3		RD25PJ221X			CARBON FILM R.	0.25W 220 OHM 5%	R5				1
4		RD25PJ273X			CARBON FILM R.	0.25W 22K OHM 5%	R9				1
5		RD25PJ331X			CARBON FILM R.	0.25W 330 OHM 5%	R2				1
6		RD25PJ561X			CARBON FILM R.	0.25W 560 OHM 5%	R10				1
7		RD25PJ821X			CARBON FILM R.	0.25W 820 OHM 5%	R6				1
8		RGHARJ222B			M-OXIDE FILM R.		R8				1
9		RG1ARJ220B			M-OXIDE FILM R.		R13				1
10		RG2ARJ180B			M-OXIDE FILM R.		R14				1
11		RG2ARJ270B			M-OXIDE FILM R.		R11	R12			2
12		AX1ARJ100B			M-OXIDE FILM R.		R4				1
13		RX1ARJ2R2B			M-OXIDE FILM R.		R1				1
14		TH674B002W			HEATER TRANS.		T1				1
15		YHFOP0001Z			FUSE HOLDER		FH1	FH2	FH3	FH4	4
16											
17											
18											
19											
20											
21											

EXPLODED ASSEMBLY	PART NAME		PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE									
1		CEAG0R1ZMN			ELYT. CAPACITOR	0.1MFD 50V MS	C45	C46			2
2		CEAG010ALX			ELYT. CAPACITOR	1MFD 50V	C86				1
3		CEAG010ZMN			ELYT. CAPACITOR	1MFD 50V MS	C87	C88			2
4		CEVB101ALX			ELYT. CAPACITOR		C15	C16			2
5		CEVD100ALX			ELYT. CAPACITOR		C33	C34	C47	C48	10
6							C53	C54	C55	C56	
7							C67	C68			
8		CEVD470ALX			ELYT. CAPACITOR		C83	C84			2
9		CEVE100ALX			ELYT. CAPACITOR		C110				1
10		CEVE4R7ALX			ELYT. CAPACITOR		C111	C13	C14	C65	8
11							C66	C91	C82	C85	
12		CEVG010ALX			ELYT. CAPACITOR		C115	C121	C31	C32	2
13							C98				
14		CKGB102KBT			CERAMIC CAP.	1000PF 50V -10, +10% B	C25	C26	C57	C58	4
15		CKGB391KBT			CERAMIC CAP.	390PF 50V -10, +10% B	C73	C74			2
16		CKGB561KBT			CERAMIC CAP.	560PF 50V -10, +10% B	C3	C4			2
17		CQMB123KTH			MYLAR CAPACITOR	0.012MFD 50V -10, +10%	C21	C22			2
18		CQMB223KTH			MYLAR CAPACITOR	0.022MFD 50V -10, +10%	C23	C24			2
19		CQMB272KTH			MYLAR CAPACITOR		C95	C96			2
20		CQMB273FEN			MYLAR CAPACITOR	0.027MFD 50V -1, +1%	C35	C36			2
21		CQMB332KTH			MYLAR CAPACITOR	3300PF 50V -10, +10%	C1	C19	C2	C20	4

EXPLODED ASSEMBLY	PART NAME		PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE									
1		BCE60B3XL0			E-STOP RING	6.0 M/M, 0.8T	ZZ4				1
2		BP3025WXSP			SPRING PIN		ZZ3				1
3		BSPC3005NZ			CEMS SCREW	(+1)BIT, M3 X 5 S-ZNCR	ZZ5-1	ZZ5-2			2
4		BSP21706NB			PAN HEAD SCREW		ZZ11				1
5		BWM17383BN			FLAT L WASHER		ZZ12				1
6		BWM30805SN			FLAT L. WASHER	FLAT LARGE, 3 M/M S-NI	ZZ6-1	ZZ6-2			2
7		CCDE101KOM			CERAMIC CAP.	100PF 500V -10, +10% SL	C71	C72			2
8		CCFB331KOT			CERAMIC CAP.	330PF 50V -10, +10% SL	C69	C70	C75	C76	4
9		CCGB101KOT			CERAMIC CAP.	100PF 50V -10, +10% SL	C7	C8			2
10		CCGB820KOT			CERAMIC CAP.	82PF 50V -10, +10% SL	C10	C9			2
11		CEAC221ALX			ELYT. CAPACITOR	220MFD 10V	C41	C42			2
12		CEAC470ALX			ELYT. CAPACITOR	47MFD 10V	C11	C12			2
13		CEAD221ALX			ELYT. CAPACITOR	220MFD 16V	C29				1
14		CEAE100ALX			ELYT. CAPACITOR	10MFD 25V	C120				1
15		CEAE101ALX			ELYT. CAPACITOR	100MFD 25V	C17	C18			2
16		CEAE3R3ALX			ELYT. CAPACITOR	3.3MFD 25V	C112				1
17		CEAE4R7ALX			ELYT. CAPACITOR	4.7MFD 25V	C61	C62			2
18		CEAE4R7ZMN			ELYT. CAPACITOR	4.7MFD 25V MS	C5	C6			2
19		CEAE470ALX			ELYT. CAPACITOR	47MFD 25V	C27	C28			2
20		CEAF222ACN			ELYT. CAPACITOR		C117				1
21		CEAGR33ZMN			ELYT. CAPACITOR	0.33MFD 50V MS	C43	C44	C63	C64	4

EXPLODED ASSEMBLY	PART NAME		PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE									
1		CQMB473KTH			MYLAR CAPACITOR	0.047MFD 50V -10, +10%	C49	C50			2
2		CQSC472FEN			STYROFLEX CAP.	4700PF 100V -1, +1%	C37	C38			2
3		CQSC562FEN			STYROFLEX CAP.	5600PF 100V -1, +1%	C39	C40			2
4		FJRR19L10S			FILTER		LPF1	LPF2			2
5		LF103JC01K			CHOKE COIL		L1	L2			2
6		ML111SL001			REC SWITCH ARM		ZZ10				1
7		MW601LX001			ROD REC		ZZ9				1
8		PSRP025C0X			PRINTED W. BOARD						1
9		QDSMA150XN			SILICON DIODE	MA150 VF=1.2V, VR=35V NO-RANK 24MIN	D10	D13	D14	D7	5
10							D8				
11		QDSSRIKX4P			SILICON DIODE	SR1K-4 VR=200 4-RANK 25MIN	D11	D9			2
12		QQHNE645AZ			I.C.	NE645B	U1	U2			2
13		QQMO6551AN			I.C.	AN6551 NO-SELECT.	U3				1
14		QTC045XEA			TRANSISTOR	2SC945 Q,R-RANK	Q13	Q14			2
15		QTC1685XAN			TRANSISTOR	2SC1695 Q,R-RANK	Q11	Q12	Q7	Q8	4
16		QTC1845XAA			TRANSISTOR	2SC1845 E,F-RANK	Q1	Q2	Q3	Q4	6
17							Q5	Q6			
18		QTK0136XBN			TRANSISTOR	2SK136 S-RANK	Q10	Q9			2
19		RD25PJ100X			CARBON FILM R.	0.25W 10 OHM 5%	R117				1
20		RD25PJ101X			CARBON FILM R.	0.25W 100 OHM 5%	R3	R4			2
21		RD25PJ102X			CARBON FILM R.	0.25W 1K OHM 5%	R19	R20			2

EXPLODED ASSEMBLY	PART NAME		PART CODE		PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE	PART STOCK NUMBER								
1		QDSMA150XN		SILICON DIODE	MA150 VF=1.2V,VR=35V NO-RANK 24MIN		D1	D10	D11	D12	21
2							D13	D14	D15	D16	
3							D17	D19	D2	D20	
4							D21	D22	D3	D4	
5							D5	D6	D7	D8	
6							D9				
7		QQ004001AA		I.C.	UPD4001C QUADRUPLE 2-INPUT NOR GATE		U2				
8		QQ004081AA		I.C.	UPD4081C QUADRUPLE 2-INPUT AND GATE		U1				
9		QTA0564ACN		TRANSISTOR	2SA564A Q,R-RANK		Q3	Q4			
10		QTA0794XAN		TRANSISTOR	2SA794 Q,R-RANK		Q6				
11		QTC1685XAN		TRANSISTOR	2SC1685 Q,R-RANK		Q1	Q2	Q5		
12		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%		R15	R17	R18	R3	
13							R33				
14		RD25PJ103X		CARBON FILM R.	0.25W 10K OHM 5%		R28	R8			
15		RD25PJ104X		CARBON FILM R.	0.25W 100K OHM 5%		R12	R34	R35		
16		RD25PJ153X		CARBON FILM R.	0.25W 15K OHM 5%		R10	R11			
17		RD25PJ155X		CARBON FILM R.	0.25W 1.5M OHM 5%		R7				
18		RD25PJ164X		CARBON FILM R.	0.25W 160K OHM 5%		R4				
19		RD25PJ183X		CARBON FILM R.	0.25W 18K OHM 5%		R13				
20		RD25PJ184X		CARBON FILM R.	0.25W 180K OHM 5%		R31				
21		RD25PJ272X		CARBON FILM R.	0.25W 2.7K OHM 5%		R26				

EXPLODED ASSEMBLY	PART NAME		PART CODE		PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE	PART STOCK NUMBER								
1		RD25PJ330X		CARBON FILM R.	0.25W 33 OHM 5%		R37				1
2		RD25PJ332X		CARBON FILM R.	0.25W 3.3K OHM 5%		R24				1
3		RD25PJ333X		CARBON FILM R.	0.25W 33K OHM 5%		R21	R27			2
4		RD25PJ393X		CARBON FILM R.	0.25W 39K OHM 5%		R32				1
5		RD25PJ394X		CARBON FILM R.	0.25W 390K OHM 5%		R22				1
6		RD25PJ470X		CARBON FILM R.	0.25W 47 OHM 5%		R25				1
7		RD25PJ472X		CARBON FILM R.	0.25W 4.7K OHM 5%		R36				1
8		RD25PJ473X		CARBON FILM R.	0.25W 47K OHM 5%		R16				1
9		RD25PJ474X		CARBON FILM R.	0.25W 470K OHM 5%		R30				1
10		RD25PJ562X		CARBON FILM R.	0.25W 5.6K OHM 5%		R29				1
11		RD25PJ563X		CARBON FILM R.	0.25W 56K OHM 5%		R23				1
12		RD25PJ683X		CARBON FILM R.	0.25W 68K OHM 5%		R5				1
13		RD25PJ684X		CARBON FILM R.	0.25W 680K OHM 5%		R6	R9			2
14		RD25PJ824X		CARBON FILM R.	0.25W 820K OHM 5%		R1	R2			2
15		RD25PJ104X		CARBON FILM R.	0.25W 100K OHM 5%		R38				1
16		SP08CFX05A		PUSH SWITCH			S1				1
17		WUG109EEXX		HI-WRAP WIRE			NO1				1
18		WUG219EEXX		HI-WRAP WIRE			NO2				1
19		WUG314EEXX		HI-WRAP WIRE			NO3				1
20		YJF09S004Z		JUNCTION JACK	B9P-SHF-1AA		Y1				1
21											

EXPLODED ASSEMBLY	PART NAME		PART CODE		PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE	PART STOCK NUMBER								
1		CQMB123KTH		MYLAR CAPACITOR	0.012MFD 50V -10, +10%		C13	C14			2
2		CQMB153JEH		MYLAR CAPACITOR			C1	C2			2
3		CQMB203JEH		MYLAR CAPACITOR			C3	C4			2
4		CQMB273KTH		MYLAR CAPACITOR	0.027MFD 50V -10, +10%		C11	C12			2
5		CQMB333KTH		MYLAR CAPACITOR	0.033MFD 50V -10, +10%		C7	C8			2
6		CQMB472KTH		MYLAR CAPACITOR	4700PF 50V -10, +10%		C10	C5	C6	C9	4
7		CQMB563KTH		MYLAR CAPACITOR	0.056MFD 50V -10, +10%		C15	C16			2
8		LF392KB01S		R.F.C			L1	L2			2
9		MW201BS001		TERMINAL							6
10		MW401CX006		SHOT JAMPER	10MM						1
11		PSSW210C0X		P.W BORD							1
12		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%		R19	R20			2
13		RD25PJ150X		CARBON FILM R.	0.25W 15 OHM 5%		R7	R8			2
14		RD25PJ223X		CARBON FILM R.	0.25W 22K OHM 5%		R17	R18			2
15		RD25PJ272X		CARBON FILM R.	0.25W 2.7K OHM 5%		R10	R11	R12	R9	4
16		RD25PJ332X		CARBON FILM R.	0.25W 3.3K OHM 5%		R15	R16			2
17		RD25PJ560X		CARBON FILM R.	0.25W 56 OHM 5%		R5	R6			2
18		RD25PJ822X		CARBON FILM R.	0.25W 8.2K OHM 5%		R13	R14			2
19		RGHARJ271B		M-OXIDE FILM R.			R2				1
20		RGHARJ331B		M-OXIDE FILM R.			R4				1
21		RGHARJ470B		M-OXIDE FILM R.			R1				1

EXPLODED ASSEMBLY	PART NAME		PART CODE		PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	PART CODE	PART STOCK NUMBER								
1		RGHARJ471B		M-OXIDE FILM R.			R3				1
2		SH060406ZB		SLID ROTARY SW			S1				1
3											
4											
5											

EXPLODED ASSEMBLY	CYBERNET PART NAME		CYBERNET PART CODE		CUSTOMER STOCK NO.		PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
	REMARKS	CYBERNET PART CODE	CYBERNET PART STOCK NUMBER										
1		MW201BS001					TERMINAL						1
2		MW401CX004					SHORT JUMPER	JW-5					1
3		PSSW211C0X					P.W BORD						1
4		QDSMA150XN		SILICON DIODE	MA150 VF=1.2V,VR=35V NO-RANK 24MIN				D1	D2			2
5		QTA0794XAN		TRANSISTOR	2SA794 Q,R-RANK				Q1				1
6		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%				R2				1
7		RD25PJ223X		CARBON FILM R.	0.25W 22K OHM 5%				R1				1
8		RD25PJ330X		CARBON FILM R.	0.25W 33 OHM 5%				R3				1
9		RD25PJ472X		CARBON FILM R.	0.25W 4.7K OHM 5%				R4				1
10		SP03CAX10A		PUSH SWITCH					S1				1
11													
12													
13													

NOTE.

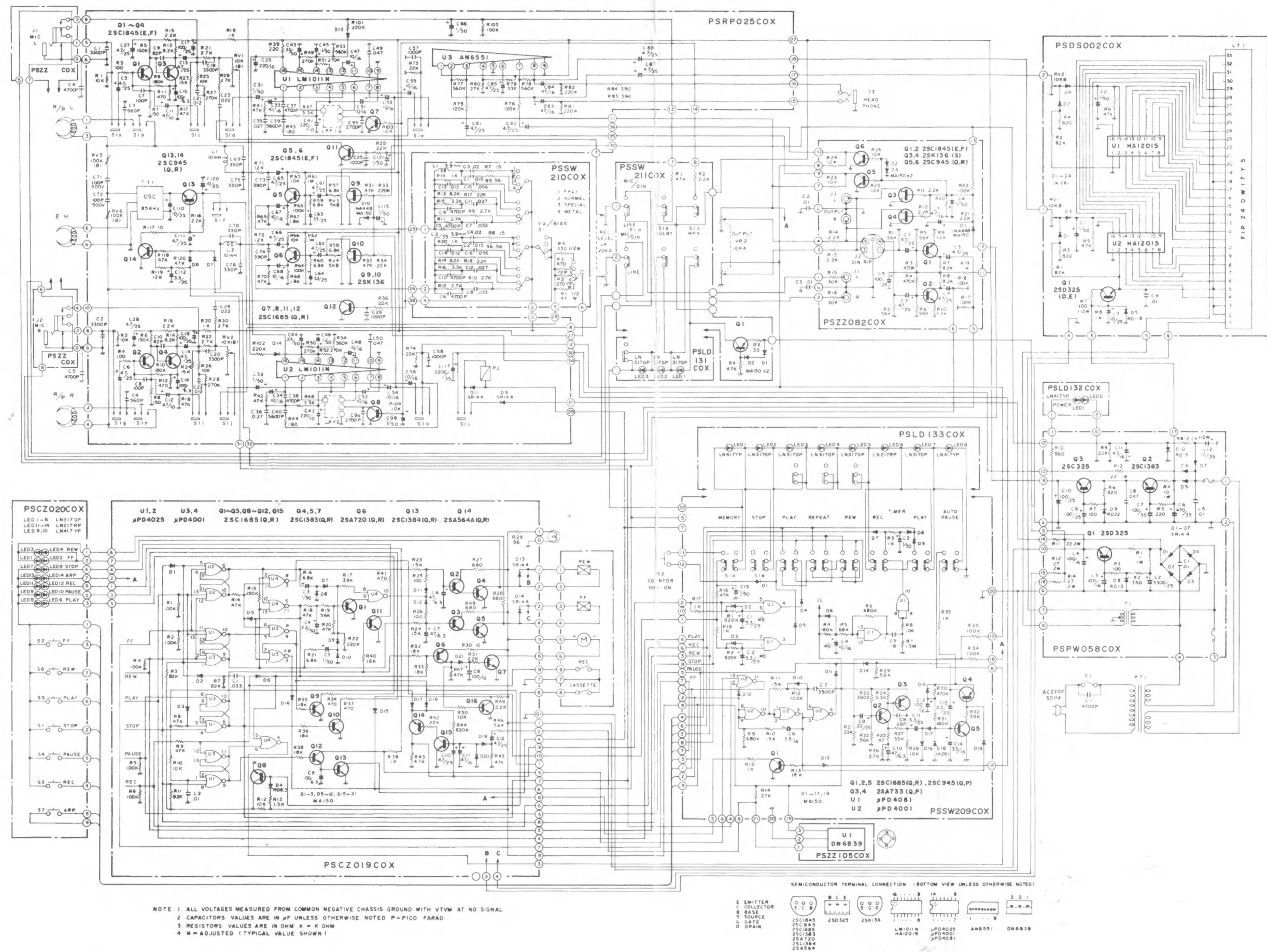
EXPLODED ASSEMBLY		PART NAME		PART CODE						
		P.W. BOARD ASSY		APSZZ082BD						
1	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		CEAD4R7ZMN		ELYT. CAPACITOR	4.7MFD 16V MS	C7				1
2		CEAE101ALX		ELYT. CAPACITOR	100MFD 25V	C5				1
3		CEAG010ZMN		ELYT. CAPACITOR	1MFD 50V MS	C6				1
		CEVE4R7ALX		ELYT. CAPACITOR		C1	C2	C3	C4	4
5		MW201B5001		TERMINAL						14
6		MW401CX006		SHOT JAMPER	10MM					2
7		PSZZ082C0X		PRINTED W. BOARD						1
8		QDSMA150XN		SILICON DIODE	MA150 VF=1.2V,VR=35V NO-RANK 24MIN	D1	D2	D3		3
9		QTC0945ADA		TRANSISTOR	2SC945A Q,R-RANK	Q5	Q6			2
10		QTC1845XAA		TRANSISTOR	2SC1845 E,F-RANK	Q1	Q2			2
11		QTK0136X6N		TRANSISTOR	2SK136 S-RANK	Q3	Q4			2
12		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%	R19				1
13		RD25PJ103X		CARBON FILM R.	0.25W 10K OHM 5%	R11	R12	R23	R24	6
14						R25	R26			
15		RD25PJ104X		CARBON FILM R.	0.25W 100K OHM 5%	R17	R18	R22		3
16		RD25PJ122X		CARBON FILM R.	0.25W 1.2K OHM 5%	R10	R9			2
17		RD25PJ222X		CARBON FILM R.	0.25W 2.2K OHM 5%	R13	R14			2
18		RD25PJ223X		CARBON FILM R.	0.25W 22K OHM 5%	R21				1
19		RD25PJ303X		CARBON FILM R.	0.25W 30K OHM 5%	R15	R16			2
20		RD25PJ474X		CARBON FILM R.	0.25W 470K OHM 5%	R3	R4			2
21		RD25PJ563X		CARBON FILM R.	0.25W 56K OHM 5%	R1	R2	R5	R6	4

EXPLODED ASSEMBLY		PART NAME		PART CODE								
		P.W. BOARD ASSY		APSZZ082BD								
1	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			QTY USED	
1		RD25PJ822X		CARBON FILM R.	0.25W	8.2K	OHM	5%	R7	R8		2
2		YJD05S011Z		5P DIN JACK					J2			1
3		YJP04S013U		4P PIN JACK					J1			1

EXPLODED ASSEMBLY		PART NAME		PART CODE							
		P.W. BOARD ASSY		APSZZ104AA							
ITEM	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1		PSZZ104C0X		P.W. BOARD							1
2		YJS09S005Z		HEAD PHONE JACK				J1	J2		2
3		YZA2500001		5P TERMINAL				Y1	Y2		2

EXPLODED ASSEMBLY		PART NAME		PART CODE						
		P.W. BOARD ASSY		APSZZ105AA						
1	REMARKS	PART CODE	PART STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		PSZZ105COX		P.W BORD						1
2		QQMN6838AN		HALL. I.C.	DN6838 HALL-I.C.	U1				1
3		WUG015EKXX		HI-WRAP WIRE		NO2				1
4		WUG115EKXX		HI-WRAP WIRE		NO1				1
5		WUG215EKXX		HI-WRAP WIRE		NO3				1
6										
7										
8										
9										

Schematic Diagram



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